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[Original Communication.]

HOW TO MAKE DRUGGISTS' SHOW-WINDOWS ATTRACTIVE.

BY S. J. BENDINER.

THIS is a question often asked.

Superficially, it appears to be quite an innocent one, yet a correct answer necessarily requires a more specific statement from its interrogator, and while I entertain no doubt whatever as to the meaning of a *pharmacist's* show window, I cannot assume this *à priori*, hence I am obliged to consider and answer this query from several standpoints, not one only. At the very beginning, however, I am confronted by another, the *real* question, to which the above query serves merely as a cover, and this vexed question has been, moreover, a standard conundrum for the several years past; it has furnished welcome material for the pharmaceutical and medical press, and has been and still is made use of, as a grateful theme, by after-dinner speakers, college professors, *et al.*, and wherever seen in print or heard, it is invariably asked under the ominous title: "Is pharmacy a profession or a trade?"

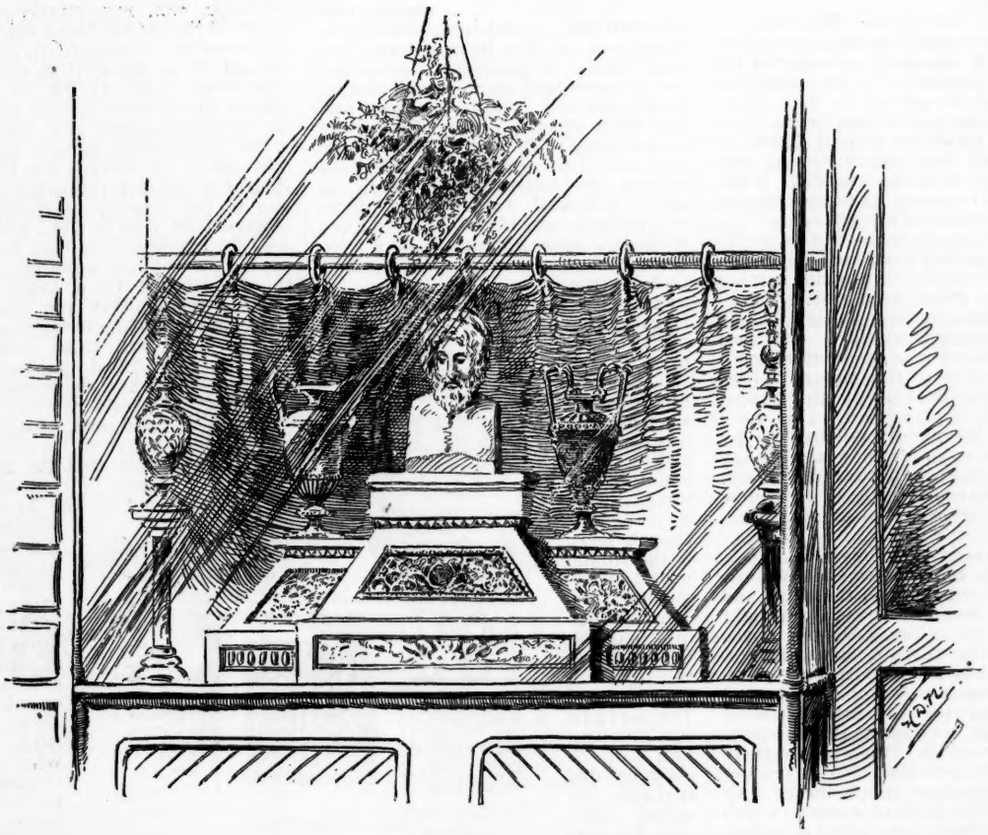
Now, in this latter query lies my answer to this inquiry: "How to make druggists' show windows attractive," because if pharmacy is a profession, why have *show* windows? Is it compatible with a professional man to make an *attractive* show, or *any* show at all?

While, aside from the conventional colored show-bottles in apothecaries' windows, a display of appropriate insignia of our profession (mortar and pestle, for instance) could certainly not be objected to by even the most exacting hairsplitter and authority upon professional etiquette, it is, on the other hand, only too evident that, in the windows of most of the 30,000 drug stores in the United States, this limit is trespassed; their windows, sanctioned by long usage, are utilized for the purpose of exhibiting merchandise in exactly the same manner as trades-people display their wares. Some druggists go even so far as to exhibit oil paintings with cards attached, "for sale," and prices marked thereon, others place a collection of photographs of actresses, etc., with scanty drapings, in their show windows, or engravings of specimen noses, mouths and eyes by some "physiognomical artist."

As "the dress maketh the man," so furnishes, in a great majority of cases, the display in the apothecary's window a tolerably reliable index to the professional standing of the man within, and for this reason, in the absence of any specification as to what kind or style of drug store is referred to, I proceed to reply to the query from the standpoints of the three distinct and prevalent classes of drug-stores, to wit: the "scalper's," the "mystic" apothecary's, and the reputable pharmacist's, in the order mentioned.

I. No æsthetic taste is requisite to adorn attractively the scalper's show window; as a golden rule, the more slips, posters, and show cards pasted upon windows and doors, with prices conspicuously marked thereon: "50 to 75 per cent lower than the high-priced ring druggists' charges" the better for the dear public and for Messrs. Chatham Street, Cutter & Co.

II. The "mystic" apothecary, usually presided over by a diplomatized (?) M.D., is frequently situated in the middle of a block, occupying one-half of a partitioned store, a sinister looking concern, resembling in appearance an old curiosity shop, and the contents of its show window harmonize well with the character of the establishment; consisting of roots and herbs, attractive on account of odd shape or quaint colors, stuffed reptiles, garden seeds, braces, trusses, etc. In case the reader desires a suggestion in this direction, I herewith give him a gratuitous hint to a first-class attraction: exhibit as a curiosity a live Canadian rattle-snake, for instance, in a glass case, as a central object, and for side pieces place on each side a large bundle of licorice root. This would, undoubtedly, attract attention and prove highly suggestive to the numerous small boy, inasmuch as it would convey to his fertile brain not only a capital lesson in natural history, but also teach him the doctrine of transmutation in the lofty domain of metaphysics, and at the same time demonstrate to him the law of equation of practical chemistry, viz.:



Canada Rattle Snake + Licorice Root = Canada Snake Root + Licorice Rattle.

III. The show window of a reputable pharmacist.—Bearing in mind what I apprehensively said in the beginning of this article, the reader will observe that I do not advocate an indiscriminate exhibition of the hundred-and-one things which are usually kept in drug-stores besides drugs and pharmaceuti-

cal preparations. Contrary to the prevailing idea that the more goods there are crowded into a window the better, I believe the exact opposite, namely, the fewer objects the better: *lucus a non lucendo*—you cannot see the woods on account of so many trees! My very first admonition is, never put into a show window articles of a perishable nature, like bottles filled with cologne, bay rum, mineral waters, patent medicines, etc., etc. Secondly, never exhibit goods in the window (and for that matter neither in show cases in the store proper) which could by any possibility bring a blush to a lady's cheek: syringes, nipples, suspensories, and the like, as I have sometimes noticed, because such things are, in good U. S. English, decidedly objectionable and improper; thirdly, strictly professional pharmacists cannot lend themselves to promote the use of patent medicines, any more than reputable physicians can, hence show-signs of more or less salable nostra, no matter how nicely mounted, pleasing to the eye and desirable to be exhibited, should not be placed in their show windows, but may be used to ornament the little sanctums usually found in the rear of drug stores; at any rate banish them from the window. What then shall be used? And how can we make our windows attractive?

Observe a good engraving or painting: the eyes will be attracted by a prominent, principal group, which catches the vision, *quasi*, as a resting place, whence, glancing right and left, behold the surroundings at ease. Focussed thus, observation is inadvertently, so to say, riveted to the picture, which accomplishes, in this way, the purpose of its master—attraction. This same rule must be strictly adhered to by every one who wishes to display goods, of whatever nature, effectively.

In accordance with the above, I now proceed to give my ideal of a pharmacist's show window.

In conformity with the width, depth, and height, we have for each window colored show bottles to the right and left; their liquids to be of very light and brilliant colors. Above, in the centre of the window, should hang a rustic basket of proportionate size, with, if possible, living flowers and plants, otherwise with artificial ones. At the base, occupying three-fourths of the entire width of the window, there should rest a pedestal, also of proportionate dimensions, in symmetry with the height and depth of window, which base or pedestal is to serve as a platform; painted, decorated, or enameled in color to correspond harmoniously with the tone of the shop fixtures, ceiling, etc., within. Upon this platform, in the centre, should stand a bust of Æsculapius, and at each side of the bust an urn or a vase of Greek design; which objects, however, must only be three-fourths the height of the centre piece. For a back ground, hanging upon rings, sliding on a horizontal bar, there should be a gracefully draped curtain of dark colors and of heavy and rich material, about twelve inches higher than the top of the centre figure. *And that is all.*

For a second window, show bottles, basket, platform and curtain as in the former, only instead of bust and vases, there might be displayed a mortar and pestle as a centre piece, and on each side a little shorter column or shaft, with an eagle, spreading its wings, upon the top.

For a third window, appointments as previously suggested, but instead of the platform a show case of same size as the pedestal above described, containing toilet sponges; upon this case should stand three glass jars, filled with select surgeon's- and cup-sponges, the middle jar to be one-fourth larger than the other two.

These three windows will show objects sufficiently emblematic of our profession and will in all likelihood prove attractive and — last but not least—be acceptable even to those who religiously believe that "Pharmacy is a profession and not a trade!"

NEW YORK, N. Y.

[ORIGINAL COMMUNICATION.]

MERCUROUS IODIDE.

BY R. ROTHER.

THERE are no exceptions to natural laws; neither do their apparent variations confirm them. What are fallaciously believed to be breaks in their continuity are merely the obscurations caused by conflicting interactions. It has been pointed out that nearly all peculiarly active and potent medicinal agents have characteristically high molecular weights and that their effective doses are inversely proportional. There are certainly numerous and grave exceptions militating against this generalization which, as above indicated, future observations will probably elucidate. Whilst mere molecular mass appears to be a conspicuous factor, it cannot be doubted that structure is also a highly important element. But this elaborate compound structural complexity is a direct concomitant of mass, and hence, although body is the fundamental requisite, the constitutional condition is, in reality, the predominant feature. The origin and propagation of a chemical disturbance requires certain elements of instability inherently distinctive of the interacting agents. The resulting change will be in accord with the state of their complexity. Chemical compounds of high molecular weight and numerous constituents, exhibit a proportional variety of properties and a corresponding degree of changeability. When certain of these bodies come in contact with living tissue, the successive chemical, physiological, and physical alterations which they superinduce are mutually deep, radical, and persistent. Similar characters inhere with elementary chemical substances of high atomic weight and quantivalence. The elements possessing these traits in the more exalted degree do not preferably assume these states in their usual forms of combination.

Those of comparatively low atomic weight are prone to enter the lower stages of valence, whilst those of high massiveness of molecule have a preponderant tendency to revert to the elementary condition. The scheme or table resulting from the arrangement of the elements in the order of their atomic weights classifies them into series of columns. Each column presents the same number of elements in the regular order of quantivalence from one to seven inclusive, and the columns in regular succession exhibit an augmented scale of atomic weights. This so-called "Periodic Law" shows that elements of the same quantivalence have certain common characteristics in virtue of their particular degree of valence, whether it be normal or assumed. Furthermore the members of each column maintain a community of resemblances, peculiar to that order of the series. Although it is incomparably less important than the property of valence, the writer, however, believes that an appropriate term should be applied to the faculty in virtue of which an element occupies its distinctive place in the periodic scheme by reference to its atomic weight. Such a term may be properly derived from the Greek word *choros* meaning place. Hence *choricity* will indicate the property according to which an element will be dichoric, trichoric, etc., respectively when it occurs in the second, third, etc., column of the series. Consequently, when for example it is stated that mercury is nonochoric and dyadic, it will be known that it is the second member of the ninth series, and vice versa.

The elements belonging to the higher columns of the scheme are in possession of a peculiar property, probably due to the manner of their genesis (*Pharmacist*, 1882, p. 145), which renders the combinations that they form by higher valence more stable than those generated by a lower degree. This is particularly the case with copper, silver, gold, mercury, and lead. Since, however, these compounds formed by lower valence when decomposing, separate into free element and salts of higher valence, it becomes inferable that the lower degree of composition is not of the kind which results from the action of so-called apparent valence. The writer believes that this is another instance of ultra or sub-valence (*New Idea*, Sept., 1884), whereby the element is appended to the appearingly saturated salt by the interposition of fractional bonds. The writer has already indicated (*American Journal of Pharmacy*, Dec., 1883) a manner of graphically expressing this condition without doing violence to the current method of notation. To again illustrate this, preliminary to its new application to elements, the following example may be given.

Mercuric iodide readily dissolves in a solution of potassic iodide and the compound is written HgI_2. $2KI$ or HgK_2I_4 is formed. In this new combination the two coalescing salts, which were primarily fully saturated compounds, are very evidently held together by some novel force originally not apparent. This new affinity, or rather sub-division of an old one fully pres-

ent, can be assumed to act between any number of molecules like or unlike, simple or compound. Hence it may be granted that four molecules of potassic iodide are thus held together, and that two potassic radicles are then substituted by one mercuric radicle. Now the available and unabsorbed chemism of any element can be symbolized as though itself material. Thus four free iodine radicles can be conceived as an indissoluble unit, and their available affinities indicated by an additional symbol, making the expression $I_4 \times_4$. Then, when the affinities are absorbed, they can be represented as substituted by the absorbing element and therefore disappear. By giving the symbols a structural form a result like the following will be had: $(KI_2)—Hg—(KI_2)$.

The mercurous salts, as for instance the iodide, are habitually represented by structure thus: I—Hg—Hg—I. Now if they were constituted in that manner, they ought, by analogy, to possess greater stability than the mercuric salts, which they do not. Hence, as already stated, the writer believes that their constitution rests on another principle, namely, that just above expounded. Representing the potential chemism of mercury by $Hg \times_2$ and then conceiving a replacement by an iodine radicle, the univalent radicle $Hg \times I$ remains. Substituting this in I—Hg—I and I—Hg—(HgI) results. Now this formula does not materially differ from that usually assigned to mercurous iodide, but the writer claims this form places the mercury within the parenthesis into the peculiar attitude that characterizes the indefinite union effected by subvalence in general. In order to make the illustration plainer, a triple molecule of mercury can be assumed in which Hg is replaced by I_2 yielding $(Hg_2)\ I_2$. Another means of exemplifying the feebler union in mercurous than in mercuric salts is seen in the action of potassic iodide on mercurous iodide, whereby metallic mercury and potassio-mercuric iodide result. This makes it evident that the affinity among the components of the latter salt, which is undoubtedly subvalent, is superior to that of the mercurous iodide constituents which presumably indicates the superlative binding powers attendant on apparent valence. Not even a simple double decomposition between a mercurous salt and potassium iodide can become completed before this destructive tendency appears. It is, however, a remarkable fact that a perfect double decomposition without ulterior results is readily completed between a mercurous salt and the potassio-mercuric iodide. In this noteworthy reaction a pure and bright yellow mercurous iodide, and the scarlet-red mercuric iodide are together precipitated according to the following equation: $2(HgNO_3) + HgK_2I_4 = 2(HgI) + HgI_2 + + 2(KNO_3)$. The mercuric iodide dissolves in a hot saturated solution of sodium chloride, whilst the mercurous iodide remains insoluble in a perfectly pure condition. It is furthermore remarkable that when mercuric iodide is dissolved in hot sodium chloride solution, it is decomposed by mercurous salts as follows: $2(HgNO_3) + HgI_2 = 2(HgI) + Hg\ (NO_3)_2$. These two reactions, by the intervention of sodium chloride, make it not only possible, but even extremely practicable of producing perfectly pure mercurous iodide with the greatest ease and facility from mercurous chloride and potassic iodide—a performance which heretofore was impossible. The reaction takes place as follows: $HgCl_2 + 4\ KI = HgK_2I_4 + 2KCl$ and $4(HgCl) + HgK_2I_4 = 4(HgI) + HgCl_2 + 2KCl$.

The methods now in vogue for the preparation of mercurous iodide are chiefly based upon the direct reaction of the two elements and purification of the product by means of alcohol. The writer, under a pseudonym (*Pharmacist*, May, 1873), proposed a process for this salt which employed hot sodium chloride solution in place of alcohol. The product was absolutely free from mercuric salt, but slightly contaminated with metallic mercury which imparted the usual greenish tint. Pure mercurous iodide is, however, of a bright yellow color which is speedily dimmed by exposure of the substance to light. Hence, during its course of preparation as well as subsequently, even a strong diffused light should be carefully avoided. From the above considerations the following process is derived:

Mercurous Chloride.	9,404 parts
Mercuric Chloride...	2,705 "
Potassium Iodide....	6,824 "
Sodium Chloride....10,000	"
Water, sufficient.	

Into a capsule of convenient size place the mercuric chloride, sodium chloride, and 100,000 parts of water; then, after complete solution, add the potassium iodide and stir the mixture until the scarlet precipitate at first formed has perfectly dissolved. To this solution now add the mercurous chloride, and during constant stirring heat the mixture on a water-bath for about twenty minutes. The bright yellow precipitate having quickly subsided, decant the clear liquid and mix the sediment with a volume of water equal to the decanted portion, and remove the supernatant liquid as before. Repeat this operation once or twice more, and then spread the bright yellow mercurous iodide evenly about within the capsule and dry it by exposure in the open air, but well secluded from the light.

DETROIT, MICH., Sept., 1884.

[ORIGINAL COMMUNICATION.]

GRECIAN WINES.

BY PROF. XAV. LANDERER, OF ATHENS.

THE wines of Greece have been pronounced, both at the Olympian Expositions at Athens and at all International Exhibitions, to deserve the general title of "excellent," being—aside from the bouquet and taste—perfectly pure, because made from pure grape-juice, and moreover rich in phosphates, while the red wines, in addition, are rich in tannin and extractive matter.

The Greek wines are superior to all others for preparing medicinal wines; and the red wines, especially, are highly prized as superior tonics in chronic diseases, debility, and wherever a generous wine is indicated. Those who desire to obtain the very best wines may find them upon the islands of Santorin, or of Ica, or in Eubœa. The sweet wines of Santorin are "ladies' wines," and surpass all similar products of Sicily or Spain.

One of the domestic wines, known from olden times, is the so-called *pitch-wine*, or *retsinato* (οἶνος ῥητινίτης), which is drank by thousands, and has acquired its name from the circumstance that it has been treated with pitch (from firs or pines) and gypsum. This wine has the common reputation of being useful in diseases of the bladder and kidney and in gravel.

The strongest of all Greek wines, with a proportion of alcohol up to 16 per cent, are those which are prepared from grapes. Such wines are specially adapted for improving the quality of lighter wines. The red wines of Greece are rich in tannin and coloring matter, and are suitable (or actually used?) for the purpose of improving the color of other European red wines. Such mixing or addition is a legitimate proceeding [provided pure wines only are used] and cannot be called either sophistication or falsification.

As a special peculiarity it may be mentioned that, up to the present time, Greece has remained the only wine producing country in Europe in which the phylloxera has not established its ravages.

[As a note to the above, we may state that Greek wines have, for some time past, been regularly used on the Continent of Europe, particularly in England and Germany, for medicinal purpose, and leading authorities of the medical profession have declared certain brands, chiefly of the heavier red wines, as being most admirably adapted where generous, astringent tonics are needed. A very sensible method of introducing these wines is adopted by certain German importers, who undertake to send to any address a selection of various brands at very reasonable prices. We have such a list before us, in which an invoice of 12 bottles, representing select wines of Cephalonia, Corinth, Patras, and Santorin, are offered (including bottles and box) for 19½ marks, carriage to be paid on delivery. In the United States, of course, the price would be proportionately higher; nevertheless, a very fair trade could be established, provided care be taken that only genuine wines are furnished.—ED. AM. DRUG.]

The Estimation of Diastase in Extract of Malt.*

Two processes have been observed. One by Mr. Carl Jungk, depending on the time taken for conversion of 10 grammes of starch into dextrin and sugar, estimated by the coloration produced by a drop of the reactive fluids on one drop of standard solution of iodine. This is found to be unreliable, as the reaction is not sharp. When the proportion of starch becomes small, a brown color is produced with iodine, which becomes blue if left for twenty-four hours.

The second was suggested by Messrs. Dunstan and Dimmock: 1 gramme of starch is gelatinized with 100 grammes of water; the mucilage is mixed with various quantities of a 10-per-cent solution of malt extract, and kept at 100° F. for three hours. Each portion is then tested with iodine, which indicates clearly to which sufficient malt extract has been added to completely convert the starch. This process was found to yield good and constant results, but it requires much time and space, and many experiments must be made in each case. Dr. Wm. Roberts has proposed to make first a rough estimate of strength by the time taken to convert the starch, and a closer approximation by Dunstan and Dimmock's process. The author proposes to simplify the operation as follows: 1.5 grammes of malt extract are dissolved in 15 C.c. of water, and mixed with a mucilage of 1 gramme of starch in 100 C.c. of water. The mixture is raised to 100° F., and tested from time to time by adding two drops of iodine solution to 5 C.c., and comparing with 5 C.c. of a similar mixture to which no iodine has been added. The end of the reaction is then easily noted. Very good malt extract will convert this quantity of starch in half an hour. Many commercial specimens require three hours. If a longer time is needed, the extract should be condemned, as it has probably been overheated.

IT is proposed to hold in London, in 1886, an American Exhibition, in which American manufacturers, merchants, and producers will be invited to show the products of American industry of all kinds and descriptions. The intention is that the exhibition shall be opened on May 1st, 1886.

* Abstract of a paper by T. S. Dymond, read before the British Pharm. Conf. Taken from the *Chemist and Druggist.*

[Original Communication.

ACACIA HOMALOPHYLLA.

(Violet Wood.)

BY H. STIEREN, M.D.

This wood occurs in commerce in smoother or rougher pieces, exhibiting bark, bast, young wood, and core, of light or dark brown color. The scent, particularly upon friction, reminds one rather of violets proper than of orris root.

In making a tincture of the wood, a piece was selected which contained the four different parts mentioned, from each of which a corresponding amount was taken, viz., 2 grammes of bark and splint, 4 grammes of younger wood, and 8 grammes of heart-wood, or core, in about the proportion as they occurred in the drug; 14 grammes in all were bruised and macerated with eight times their weight, equal to 112 grammes of alcohol (94%), when the alcohol commenced immediately to be colored brown, indicating much extractive or coloring matter.

From intermediate experiments it was ascertained that the most highly scented part of the wood is the centre, of a deep, brownish red color, with purplish tinge, remotely resembling black walnut; the younger wood, of a whitish color, possessing only a faint smell, which slightly increases again in the bast and bark; the bast is of a yellowish-brown, and the bark of a deep brown color.

Violet Wood (*Acacia homalophylla*). *a*, Core, horizontal section, × 75. *b*, Young wood, vertical section, × 75. *c*, Bast, coarse powder, × 75. *d*, Outer bark, vertical section, × 75.

A small quantity of the bruised, dark heart-wood, slightly boiled with water, imparted to the water a rich, yellowish-brown color and the peculiar flavor, and so did the bast and bark, while the younger wood, of yellowish-white color, did not, upon boiling, color the water at all, and imparted only a scarcely perceptible flavor.

The watery decoction of the dark wood, as well as the alcoholic tincture (the latter previously diluted with the same volume of water) produced with the salts of iron a muddy, greenish turbidity, with simultaneous greenish-brown precipitate. Potassium bichromate caused at first no change; after a while the liquid assumed a slightly muddy, brownish color.

The alcoholic tincture, of rich brown color, was filtered off from the wood, and the remainder treated with 56 grammes alcohol and, after due extraction, mixed with the first portion. This tincture left, upon evaporation, a reddish-brown, easily pulverulent residue, which, *particularly by rubbing or friction*, exhibited a persistent and lasting violet odor, with an additional scent of stewed prunes.

Water yielded with the wood a rich brown liquid of the same odor, only not so strong as the alcoholic tincture, the odor being lost upon evaporation to dryness, leaving a brown residue.

Proportionate amounts of the wood, as indicated above, were distilled with water and a small amount of alcohol, after sixteen hours' maceration, the operation resulting in a colorless, very slightly turbid distillate, of violet scent, with the unavoidable, yet withal pleasant prune-flavor adhering.

In the alcoholic tincture, potassium hydrate causes a brown precipitate, insoluble in excess of alkali; sulphuric, nitric, and muriatic acids leave the tincture apparently unchanged, while the peculiar odor is more strongly developed; acetic acid hides the odor more or less.

From the foregoing statements it becomes apparent that the persistent odor of the wood rests entirely in a gum-resin with oleo-resin, and the wood might find its best application in the composition of sachet powders, its odor being so persistent.

Detroit, Mich.

Melitose in Cotton-Seed.

The peculiar variety of sugar known as *melitose* ($C_{12}H_{22}O_{11}.3H_2O$), discovered by Johnston in 1843, has hitherto been found only in a kind of manna obtained from certain species of eucalyptus of Van Diemen's Land. H. Ritthausen, however, has ascertained that cotton-seed contains considerable quantities of it.—*Journ. f. prakt. Chem.*, 1884, 351.

[Original Communication.]

CASSIA OCCIDENTALIS.

BY H. STIEREN, M.D.

The seeds of this plant, which is occasionally found in the Southern States, contain *no* caffeine, nor any other alkaloid, but some fatty oil which easily becomes disengaged and empyreumatic upon application of heat to the seeds, in a partially closed vessel. The parching or toasting of the seeds causes volatilization of water contained therein; then the oily substance makes its appearance on the walls of the container, accompanied by an odor closely resembling that of parched beans or peas, very remotely, and with some imagination only, simulating that of coffee. Treatment of the parched seeds with dilute alcohol, as also the turbid, brown watery extract, developed the presence of phosphates of lime, potash, and soda.

Detroit, Mich.

The Santonin Manufacture in Turkestan.

A large factory is being built at present in the city of Tshemkent, in the Syr Daria district of Turkestan, for the manufacture of santonin from santonica. There are only two places known in the world where santonica is cultivated, namely, in some localities of South America, and in the not very extensive valley of the mountain-river Arissi, about Tshemkent in Turkestan.

In South America, santonica is obtained only in small quantities, scarcely sufficient for home consumption, and is quite inferior in quality to that raised in Turkestan. [This is probably due to the difference in species, as well as to difference of soil and climate.—Ed.]

In the valley of the Arissi, the so-called worm-seed (*Artemisia Santonica* or *maritima*) has grown wild from immemorial times. The plant is called *darmena* by the natives, and over 1,600 tons of the seed are annually collected. It does not require cultivation. The seed is collected by the Kirghise and Sartes during August, and is then sent in larger or smaller lots to the interior of Russia.

Large caravans of camels laden with wormseed annually pass through the steppes of Asia, towards Orenburg, whence it is further transported to Moskow, the chief centre for the market of this product.

Though wormseed is partly used as such for medicinal purposes, yet its active principle, *santonin*, is generally preferred. In the whole of Europe there are (or have been) only five factories of santonin, three of which are in Germany, and one in England. The fifth, of small extent, was located at Orenburg, but was in operation only three years. Hence, the establishment of an extensive factory in the very heart of the home of the crude drug is quite a surprising but progressive undertaking. Its establishment owes its origin to the enterprise of the large house of W. J. Iwanow, of Tashkent.

As 100 pounds of worm-seed yield only 2 pounds of santonin, it will easily be seen that the saving of the expense of carrying 98% of useless material for such long distances will enable this factory to produce santonin at a price which will compel the suspension of the manufacture elsewhere. In fact, all foreign factories, except one in Hamburg and one in England, have already ceased operations.

Up to the present, the Turkestan works have cost 950,000 marks ($245,600), and when completed will have cost 350,000 marks ($86,800) more. The company (Iwanow & Sawnikow) intends to work up about 1,600 tons of seed annually, representing a product of 32,000 kilos of santonin. The interior arrangements of the factory and the technical working has been assumed by the firm of Biber and Zobel, of Hamburg, which has also the monopoly of the sale of the product for the first five years. The necessary machines and apparatus have been furnished by the firm Burgdorf Bros. (Gebrüder Burgdorf), of Altona. A peculiar feature is this, that all the heating, both of the steam-boilers, the workshops, and dwelling-houses, will be done by burning the refuse from the factory. Transportation of the machines was a very difficult matter, and cost about 33,000 marks ($8,184). Special wagons had to be built to convey the heavy boilers, machines, etc., for a distance of 1,100 kilometers (690 miles). From Orenburg to Tashkent transportation was performed by camels, and occupied a whole year. It is expected that operations will be commenced during the present October.—C. O. Cech, in *Dingler's Pol. Journ.*

Prof. Flückiger (*Arch. d. Pharm.*, 222, 612) succeeded in obtaining specimens of the *Artemisia* growing in the steppe about Tshemkent, and found

that they were larger than the species of *Artemisia Cina* of Willkomm, which he had mentioned in his Pharmacognosie (1883, p. 778). The new specimens are nearly one-half meter high, the coarse woody stems arise, more than one in number, from the strong, very dense root, which is 1 Cm. in thickness, and reaches 20 Cm. in length. Otherwise the species agrees with Willkomm's, and also with the *Artemisia pauciflora*, illustrated by Bentley & Trimen (plate 157). Whether this *Santonica* should be classed as *Artemisia Cina*, or as a form of *A. maritima*, must be left to the decision of specialists; Prof. Flückiger could not find any important differences. Whether santonin occurs only in the particular species of *Artemisia* above mentioned, or also in others, and whether it exists already in young plants, and increases, decreases, or disappears with the growth of the plant, are questions which will probably be decided in the near future.

Papayotin.

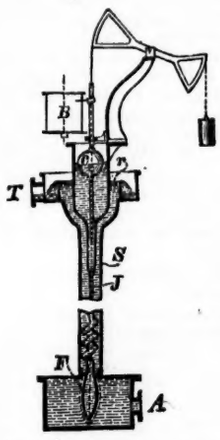
PAPAYOTIN is the active principle of the juice of the melon-tree (*Carica Papaya* L.), native of the tropical zones and flourishing especially in Brazil, where it only requires about 6 months to grow to a man's height, and to furnish fruit which ultimately attain a weight up to 15 pounds.

After three years, when the tree is about 18 feet high, and about a foot in diameter, it begins to die off, from above downwards. Up to this period, however, it is very fruitful, there being no period of the year when it does not bear either flower or fruit. The wood contains an abundance of yellow, rather bitter, milky juice, which possesses in a high degree the property of digesting albumen, and therefore also meat, similar to gastric juice. It has, moreover, the remarkable property of not confining its digestive action to acid solutions—as is the case with pepsin—but it is equally active in neutral or alkaline solutions.

The French chemist, Wurtz, in conjunction with Bouchut, first extracted the digestive ferment, *papayotin* or *papaïn*, in 1880. Bouchut employed it in the Child's Hospital in cases of dyspepsia and other disturbances of the digestive organs, for which pepsin had previously been used, and obtained the best results. Rossbach found that the substance was capable of rapidly dissolving and removing the membranes forming in croup or diphtheria, and thereby greatly contributing to a favorable termination of the diseases. It is assumed that, by the "digestion" of the diphtheritic membranes and the morbid elements probably existing in them, the further introduction of the latter into the blood is prevented. But it will require further study to fully clear up its method of action and its value as a remedy in these diseases (it is applied by brushing over the diphtheritic spots a solution of the substance). It is, however, important that only a reliable preparation be used, since there are some in the market which are quite inert.—DR. W. FLIESS, in *Pharm Zeit.*

The Alkaloids of Aconitum Lycoctonum.

TWENTY years ago, Dr. Hübschmann described, under the names lycoctonin and acolyctin two new alkaloids that he had discovered in the roots of the yellow flowered *Aconitum Lycoctonum*. Subsequently these compounds were further investigated by Professor Flückiger and others, amongst whom Messrs. Wright and Luff came to the conclusion that they were identical with aconine and pseudaconine, the decomposition products of aconitine and pseudaconitine respectively (*Pharm. Journ.* [3], viii., 169). The subject has recently been taken up afresh by Messrs. Dragendorff and Spohn, who report (*Ph. Zeit. f. Russl.*, xxiii., 313) that they have found Hübschmann's lycoctonine and acolyctine to be really decomposition products, though not of aconitine and pseudaconitine, but of two hitherto unnoticed alkaloids peculiar to *A. Lycoctonum*, which they have named lycaconitine and myoctonine and represented by the formulæ $C_{27}H_{34}N_2O_6$ and $C_{27}H_{30}N_2$ and O_8. Some physiological experiments made by Herr Jacobowsky (Dissertation Dorpat) appeared to show that lycaconitine is an energetic poison, resembling curare in its action, but not suitable for therapeutic purposes, as it is imperfectly absorbed by the stomach, and under the influence of the secretions passes into a condition in which it is inert.—*Pharm. Journ.*



APPARATUS FOR THE CONTINUOUS REGISTRATION OF SPECIFIC GRAVITY.

A RECENT German patent (27,928) covers a novel method for continuously registering the specific gravity of liquids during the process of distillation. The apparatus consists of a standpipe *S*, with overflow *r*. Within the standpipe is placed a smaller one, *J*, the lower part of which consists of an expansible bulb (*F*) or membranous bag. This inner pipe is filled to a proper height with a liquid of known specific gravity. The distillate of which it is desired to control the density, enters the apparatus at *A*, flows through *S*, and escapes through the aperture *T*; and according as its density becomes higher or lower, the inner tube is floated higher or lower, the variation being registered by means of the floating ball *c*, and the drum *B*, which is made slowly to revolve, and upon which a corresponding curve is drawn by a pencil point attached to the rod arising from *c*.

The peculiar advantage of the arrangement consists in this, that the unknown specific gravity is measured by the height of the column of a liquid of known specific gravity which balances a column of constant height of the distillate; and, further, that both liquids are kept at the same temperature, whereby the indications of the apparatus become independent of temperature. Of course, if the density of the two liquids is to be stated at other temperatures, a simple calculation will suffice, if the coefficient of expansion is known.

The Nature of Chlorophyll.

DR. HANSEN considers that chlorophyll consists of two coloring-matters, a green and a yellow, the relative proportions being 100 of the former to 1 of the latter. They are not combined, but exist side by side in the plant. Both have been obtained in the crystalline state, the green forming spheroidal crystals, and the yellow crystallizing in needles. This has been effected by removing the fatty matters accompanying them by saponification and separating the chlorophyll-yellow by petroleum spirit, in which it is soluble, while the chlorophyll-green is not. The solution of the latter shows a red fluorescence, but that of the yellow shows none.—*Nature*, and *Pharm. Journ.*

Copper in Extract of Cannabis Indica.

THE statement of Mr. Maclagan (see our July number, p. 121) that the fine green color of extract of Cannabis indica is due to the presence of minute quantities of copper, has elicited a comment by Mr. G. B. Schmidt, one of the editors of the *Weekblad voor Pharmacie* (Groningen, Aug. 18th, 1884), who inserted a translation of the article in the journal. The following is a translation of Mr. Schmidt's remarks:

"When the *American Druggist* containing the preceding paper reached me, I happened to have in stock an alcoholic tincture of Cannabis indica prepared a few weeks previously. I at once took 100 cubic centimeters of the tincture, which had a but slightly-green color, and evaporated it to an extract upon the water-bath. The product was a resinous, but slightly green and rather blackish-colored extract, which was dirty-brown in thin layers. It contained no trace of copper, which in fact it could not have absorbed, as no copper had been used during any steps of the process.

"That copper vessels are very unsuitable for preparing extracts from alcoholic tinctures I have experienced during the last year, to my personal loss. A number of my narcotic and other alcoholic extracts turned out to be more or less contaminated with copper, some of them indeed to a great extent. The copper could be easily detected by dissolving a little of the extract in diluted sulphuric acid, and placing a polished knitting-needle in the solution."

Intoxicating Vapors from Datura Fastuosa.

IN a list of the economic products exhibited in the Calcutta International Exhibition, 1883-84, Dr. G. Watt mentions a curious use of the seeds of *Datura fastuosa*. In order to render liquor more intoxicating, the seeds are burned on charcoal under a vessel inverted to catch the smoke, and this vessel is then placed over another containing the liquor (*Gardner's Chronicle*, June 28th, p. 839). This appears to be another instance in which, as in opium-smoking, either a portion of the active principle is volatilized unchanged, or a product possessing similar properties is formed during combustion.—*Pharm. Journ.*

Salicylate of Atropine.

SALICYLATE of atropine appears to be in some quarters displacing the sulphate. Federici prepares the neutral salt (*Pharm. Post.* xvii., 733) by dissolving the atropine (23 parts), with the aid of a gentle heat, in a suitable quantity of pure alcohol, and then adding the salicylic acid gradually, to complete neutralization (18 parts), the solution being carefully tested with litmus paper during the operation. The liquid is then evaporated in a water-bath to a gelatinous consistence, the mass assuming an amber color, and the drying is finished in a sand-bath or drying-closet. Exposed to the air, the compound quickly deliquesces, but it is said to keep well, if properly preserved, though the solution is very unstable.—*Pharm. Journ.*

On the Volatility of Glycerin.

NESSLER AND BARTH, in the course of a paper on wine analysis in the *Zeitschr. f. Anal. Chem.*, 1884, p. 318, give a detailed report of their investigations into the errors of the determination of glycerin, due to its volatility at the temperature of boiling water. That glycerin is slightly volatilized when heated in open vessels, particularly when mixed with water or alcohol, had already been known, but no exact data were available to determine the amount actually volatilized. The subject was studied under various aspects, and we give a resumé of the results, so far as they may be of general interest to our readers.

1. *Volatility of dry Glycerin when heated in a drying chamber.*

a. 1 Gm. dry glycerin heated in a platinum capsule, 8 Cm. wide above, 6 Cm. wide at the bottom, and 2 Cm. high. *Loss*, during the first two hours, 64 milligrammes; during the next two, 29 Mg.; during the last three, 21 Mg.

b. 0.5 Gm. heated in same manner. *Loss*, during the first two hours, 36 Mg.; during next two, 28 Mg.; during the last three, 23 Mg.

c. 1 Gm. glycerin heated in a glass-vessel with vertical sides, of 4.8 Cm. diameter and 4 Cm. height. *Loss*, during the first two hours, 36 Mg.; during the next two, 14 Mg.; during the last three, 5 Mg.

d. 0.5 Gm. heated under the same conditions. *Loss*, during the first two hours, 45 Mg.; during the next two, 11 Mg.; during the last three, 6 Mg.

The results obtained in a drying oven are much different from those obtained on an open water-bath. The authors offer the following explanation of the fact that the rate of volatilization diminishes with the time. There being only a feeble current of air entering at the lower edge of the door and passing out through an opening in the top, the heat is only sufficient to carry off any aqueous vapor which remains steam until it leaves the chamber. The glycerin vapors, however, which at 100° C. (212° F.) are far below the boiling point, constantly tend to condense again. Gradually the interior of the chamber will become filled with a mist of glycerin, which is no longer amenable to the feeble current, and becomes denser on protracted heating.

2. *Volatility of dry glycerin upon an open water-bath.*

a. 1 Gm. of glycerin, heated in platinum vessel during one hour upon a briskly boiling water-bath, lost: a. 37 Mg., b. 39 Mg., c. 29 Mg., d. 30 Mg.

b. 0.5 Gm. heated in same manner lost: a. 34 Mg., b. 29 Mg., c. 24 Mg., d. 30 Mg.

c. 1 Gm. heated in glass vessel in same manner lost: a. 30 Mg., b. 18 Mg.

d. 0.5 Gm. heated in same manner lost: a. 11 Mg., b. 2 Mg.

The inner walls of the vessels become covered with a thin coating of glycerin. A regular mist of glycerin may be observed hovering over the surface of the liquid, and unless there is a draft to carry off the mist, its presence will retard further evaporation. Of course, the more shallow the vessel is, the more readily these vapors will dissipate. Hence the quantity of glycerin evaporating at 100° C. is—aside from other conditions—the smaller, the higher the walls of the vessels are.

In order to ascertain what influence the area of evaporating surface has upon the rate of evaporation, 2 Gms. each of glycerin were heated in two platinum vessels of different diameters. In one of 6 Cm. diameter, the loss was, in the first two hours, 120 Mg.; in the next hour, 54 Mg. In a capsule of 3.8 Cm. diameter the loss was, in the first two hours, 47 Mg.; in the next hour, 20 Mg.

When a glass capsule 5.7 Cm. diameter and 2 Cm. depth was substituted for the platinum capsule, the loss amounted, in two successive hours, to 26 Mg. and 20 Mg. respectively, showing that the rate of evaporation is less in a vessel made of a material of low heat-conducting power.

3. *Volatility of glycerin in steam.*

Mixtures of known strength of pure glycerin and water were prepared by mixing 10 Gm. of carefully dried glycerin with water to 100 C.c., and using various dilutions of this standard solution. The volatility in steam was determined in the following manner.

As small quantities of water are retained even when the mixture has been evaporated to a syrupy consistence, the weight of this residue alone could not be counted as glycerin. Hence after reaching a syrupy consistence, it was further dried for exactly one hour upon a briskly boiling water-bath, the total loss then determined, being the sum of the loss (W), caused by evaporation with the steam and of the loss (D) caused by dry-heating for one hour. It was then once more dry-heated on the water-bath. The loss (D_1) caused by the latter (which may be held equal to that suffered by the previous one hour's drying) is deducted from the loss first ascertained, and the remainder expresses the rate of evaporation in steam (W) $(W+D)-D_1=W$.

It was found that the rate of evaporation of glycerin in steam depends both on the percentage of glycerin present and on the quantity of water evaporated.

Results of experiments:

Mixtures of

a. 1 Gm. glycerin in 100 C.c. aqueous solution lost 51 Mg.
b. 1 Gm. glycerin in 50 C.c. lost 49 Mg.
c. 0.5 Gm. " " 100 C.c. " 24 Mg.
d. 0.5 Gm. " " 50 C.c. " 27 Mg.
e. 0.5 Gm. " " 25 C.c. " 34 Mg.
f. 0.25 Gm. " " 25 C.c. " 23 Mg.

The influence of the quantity of evaporated liquid upon the volatility of the glycerin is plainly evident from examples *a*, *d*, and *f* which contain one per cent; with the greater quantity of water a larger amount of glycerin volatilizes. The same may be seen by comparing the two-per-cent solutions *b* and *e*. In *c*, *d*, *e*, which contained equal quantities of glycerin, the least amount of the latter evaporated from the most dilute and the largest quantity of glycerin from the most concentrated solution.

The evaporation of glycerin with steam must be considered at least partly to be a mechanical projection of its particles with the steam. This would explain why a concentrated solution of glycerin loses more of the latter in a given time than a dilute solution.

Kayser, who had previously examined the rate of evaporation of glycerin, particularly with reference to its influence upon the results of wine-analysis, had announced that each 100 C.c. of liquid containing any (large or small) quantity of glycerin lost 150 milligrammes of the latter on evaporation, and that this quantity (150 Mg.) must be added to each residue thus obtained. Hence a liquid containing originally less than 150 Mg. of glycerin should be supposed to lose the whole of it on evaporation. Nessler and Barth, however, prove that Kayser is wrong, inasmuch as a solution containing 100 Mg. of glycerin in 100 C.c. of liquid only lost 22 Mg. with steam.

4. *Volatility of glycerin with vapor of alcohol.*

The alcoholic solutions were prepared with 10 Gms. of thoroughly dry glycerin and enough 96% alcohol to make 100 C.c.

The evaporation was conducted upon a feebly boiling water-bath, so as to cause only a slight commotion of the liquid. After the evaporation of the alcohol, the water-bath was brought to a brisk boil, so as to dry-heat the residue.

g. 1 Gm. glycerin in 100 C.c. lost 49 Mg.
h. 0.5 Gm. " " 100 C.c. " 69 Mg.
i. 1 Gm. " " 50 C.c. " 65 Mg.
k. 0.5 Gm. " " 50 C.c. " 65 Mg.
l. 0.25 Gm. " " 50 C.c. " 65 Mg.

Though these values appear to be very uniform, they are nevertheless not available for making a direct conclusion, since there is always some loss by mechanical projection. Correct deductions can only be made if the spirting is absolutely prevented. This may be done by setting upon a briskly boiling water-bath a thin-walled glass beaker containing water, and into this the capsule with the alcoholic solution of glycerin. An experiment thus conducted showed that a solution of 1 Gm. of glycerin in 50 C.c. of alcohol lost only 2 Mg.

Nessler and Barth strongly object to any correction or allowance to be made for any supposed loss of glycerin during evaporation in wine analysis, but to reduce this loss to a minimum by carefully operating.

The Therapeutic Future of Chinoline Derivatives.

SINCE chinoline (or quinoline) and its salts have been introduced as antipyretic remedies a few years ago, a series of secondary products or derivatives from this nucleus has gradually been prepared and tried therapeutically. Only a few have thus far been found to work well in practice, notably the so-called *kairine*, which shortly after its introduction almost totally displaced the chinoline itself. New products of this nature are constantly being drawn within the sphere of experimentation, and chiefly owing to the investigations and synthetical results obtained by Dr. L. Knorr, one of the chemical staff of the immense coal-tar color works of Meister, Lucius & Bruening, at Hoechst.

One of the bodies which is said to promise good practical therapeutic results is *oxymethyl-chinoline*, ($C_{10}H_{11}NO_2$,) which is prepared by heating ethyl acetate and aniline together to 120° C., and treating the product with concentrated sulphuric acid. Still more promising are said to be the products of the reaction of ethyl acetate upon derivatives of hydrazin-chinicine. Among these are some compounds which crystallize very handsomely, such as the *anhydride of oxymethyl chinicine*, or the *dimethyl-oxychinicine*, (which is very soluble in water) and other bodies, the chemistry of which need not be further explained here until they have actually been introduced into practice. — *Ber. d. Deutsch. Chem. Ges.* and *Ph. Zeit.*

Condensed Mares' Milk.

WE have in a former number mentioned the fact that a company has been started for the condensation and sale of mares' milk. The name of the firm is Carrick's Russian Condensed Mares' Milk Company; it is worked chiefly with British capital, and its factory and herds of mares are situated at and around Orenburg.

The condensed milk is sold in hermetically sealed tins. It appears in form of a very thick mass of almost pure white color, agreeable odor, and pure, somewhat honeylike taste. According to a statement on the label, it is prepared by adding to the fresh mares' milk 3 per cent of cane sugar, and then condensing to ⅓ the original volume.

Two samples yielded, on analysis, the following results:

	I.	II.
Water	26.73	24.04
Solids	73.27	75.96
Fat	4.77	6.20
Protein	13.69	12.17
Sugar	53.07	55.81
Ash	1.74	1.78

—*Milchzeit.* and *Pharm. Centralbl.*

Alkaloidal Value of Cultivated and Wild Belladonna.*

In previous reports, from a limited number of analyses, it had been shown that wild belladonna was the richest in alkaloid, also that the plant of both kinds was most active at the time of flowering.

The above results requiring confirmation, and further analyses being desirable of the second, third, and fourth year's growth of belladonna, these were undertaken. All plants were in the flowering stage and of average growth.

The method of examination was to take the leaf and root in fine powder, dried at 100°–105° F., and prepare an alcoholic extract; this extract was dissolved in water, and the solution treated with ammonia and ether.

The ether was now removed and shaken with acetic acid; the acetic acid solution treated with ammonia and again with ether; the ether on withdrawal gave the alkaloid as a crystalline residue. The amount of alkaloid was found volumetrically, by means of a dilute sulphuric acid, 100 C.c. of which exactly equals or neutralizes one gramme of atropine. This process, which had been subjected to a check operation, is easy of application and accurate in result.

Thirty-nine analyses were made of root and leaf, and with one exception the alkaloid was found most abundantly in the leaf; and the wild plant gave the largest proportion, thus confirming previous work. A recumbent variety of belladonna, first noticed by Mr. E. M. Holmes, was examined and found to give the average yield of alkaloid. The author's conclusions from his experiments and their bearings are as follows:—

1. Wild belladonna contains a larger quantity of alkaloid than the cultivated kind, but the difference is not so great as to be material in making pharmaceutical preparations; nevertheless, for uniformity's sake, the cultivated only should be used, the wild being retained for making atropine.

2. The leaves, without exception, have been found to yield the highest percentage of alkaloid; following these the root, fruit, and stem in the order of sequence. From this observation it would seem that preparations of the leaf should supersede those of the root, but when we consider the great strength of the liniment of belladonna, the only official preparation made from the root, its comparative cleanliness, and the general satisfaction it gives the medical profession, there is no good reason to advocate a change. The expediency of introducing an alcoholic extract of the leaves into the B. P. will be generally acknowledged, for such an extract is occasionally required in most dispensing establishments, for making belladonna suppositories, and it certainly would supersede, with advantage, in belladonna plaster, the extract made by the sadly unskilful process now official.

3. It was shown in a previous communication that the first year's growth of belladonna is a small plant, unworthy of collection, containing but little alkaloid; from the second to the fourth year the quantity is fairly uniform. At these ages, then, and at the period of flowering, is the best time for collecting the plants.

4. From an examination of the roots collected in spring, summer, and autumn, it was found that they contained about the same amount of alkaloid, so that the process of leafing and flowering does not exhaust the roots of alkaloid, but the experiment shows there is a simultaneous development of root and leaf, therefore the roots may be gathered at the same time as the leaves.

* Abstract of paper read before the Brit. Pharm. Conference by A. W. Gerard. After *Chem. and Drugg.*

Phospho-Citric Acid.

Mr. J. Napier suggests, in the *Analyst*, the employment of phospho-citric acid in the place of citric and tartaric acids in the preparation of certain mineral waters. The latter acids have long been used for acidulating or giving to mineral waters an acid flavor, but these acids have certain disadvantages, inasmuch as their solutions cannot be kept for any great length of time without the formation of a fungoid growth, and also the extreme difficulty of obtaining them free from lead.

A solution has recently been offered to the trade called phospho-citric acid intended to be used for this purpose. It contained:

	Per cent
Free Phosphoric Acid	34.34
Phosphate of Magnesia	1.86
Sulphate of Magnesia	1.93
Sulphate of Lime	.55
Iron and Alumina	traces
Citric Acid	6.50
Water	54.82

Poisonous metals were entirely absent and so, also, were free sulphuric, hydrochloric, nitric, and acetic acids. The solution was comparatively clear and almost colorless.

According to the proportions instructed to be used, the quantity of phosphoric acid in a half-pint will amount to .95 grains. The flavor and appearance were found to be quite as good as that made with the organic acids. Seeing that phosphoric acid has been largely used, and appears to be highly valued for raising bread and pastry, and that it is recognized as an important medicinal constituent to the system, there is no reason why this article should not be used in this highly diluted form as the acid flavoring of lemonade and mineral water.

[In the United States, "Horsford's Acid Phosphate" has for some time been a regular adjunct to the mineral water counter of retail pharmacies.—Ed. Amer. Drug.]

APPARATUS FOR GENERATING OZONE.

Since india-rubber cannot be used in contact with ozone, and cork is likewise unsuitable, G. Krebs recommends that apparatus for generating ozone should always be constructed of glass exclusively.

Fig. 1 shows an apparatus for generating ozone by the electrolysis of water. To the closed end of the leg *b* of a U-tube *ab*, which may be raised and lowered on the stand, a glass tube *c* is fused which is made to dip into a short test-tube. The platinum strip in *b* is connected with the positive pole of a battery of at least three good Bunsen cells. Through *a*, enough diluted sulphuric acid (very cold) is poured to make the level of the contents a little higher than the platinum strips. After a few minutes, the decomposition of water will have continued long enough to plainly show the presence of ozone by iodide of potassium and starch.

Fig. 2 shows another apparatus in which permanganate of potassium and sulphuric acid are used. It is a glass cylinder, the bottom of which is of the same thickness as the sides. The cylinder is closed with a high, thin-walled, ground glass cap to which a curved delivery tube is attached. Sulphuric acid is first poured into the apparatus to the height of one or two centimeters, and upon it is sprinkled a small quantity of dry permanganate of potassium, at most two parts for every one part of the acid. If too much of the salt is used, or if the salt is first introduced and the acid poured on it, a violent explosion may take place shortly afterwards. If performed as above stated, no accident ever occurs.

Fig. 3 represents an apparatus in which binoxide of barium is employed in connection with sulphuric acid. Either the ordinary binoxide may be used or, better, the hydrated binoxide, such as is produced by dissolving the common binoxide in diluted hydrochloric acid, precipitating by means of baryta water, and drying. The cylinder is charged with a layer of binoxide, about 2 Cm. in depth, and the hollow funnel attachment then adjusted. The latter has a funnel fused into it, and this is filled with concentrated sulphuric acid, which is allowed slowly to flow upon the barium oxide. These forms of apparatus can be bought of Desaga, in Heidelberg.—*Wied. Ann.*, 22, 139.

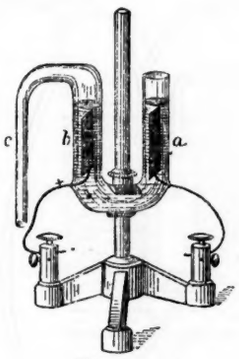


Fig. 1

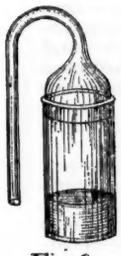


Fig. 2.

Fig. 3

Apparatus for generating Ozone.

Pill-Mass of Copaiba.

Wm. Kirchman sends a communication to the *Pharm. Zeitung* (Bunzlau), in which he reports having discovered a method for making copaiba pills which remain soluble and retain their proper consistence.

A quantity of the balsam is first made into an emulsion with the usual proportion of gum arabic, then a quantity of calcined magnesia amounting to $\frac{1}{10}$ of that of the balsam added, whereupon the mass will acquire the consistence of an ointment after about twelve hours; it will, however, not be sufficiently hard to form pills. If now a very small quantity of borax is added (which, as is well known, causes the coagulation of the gum), a beautiful pill-mass is produced, which leaves nothing to be desired. On taking some of this into the mouth, it is soon dissolved to an emulsion under the influence of the saliva and the bodily warmth. The mass keeps well; after a time, however, it requires to be kneaded in a warmed mortar before it can be formed in pills.

Note on Sulphurated Lime.*

THIS note is the result of a few experiments made to determine which of the processes that have been suggested or employed for the production of sulphurated lime is the best.

Process I. — One hundred parts of lime in fine powder was mixed with ninety parts of precipitated sulphur, the mixture was gently packed in an earthen crucible, and the lid luted on. The crucible was now heated for one hour in a charcoal fire at a low red heat, the heat being applied to the top first and gradually continued downward. The sulphurated lime was cooled and rubbed to a powder.

The resulting substance was brown in color, and had a faint peculiar odor, somewhat resembling sulphuretted hydrogen, but distinct from it. It contained about thirty per cent of sulphide of calcium.

This was estimated in the following way: 1.25 grains of sulphate of copper is dissolved in 50 C.c. of water. To this solution, kept acid with a little hydrochloric acid, the sulphurated lime is added, and the mixture is heated nearly to boiling. When all the sulphurated lime is decomposed, a little of the filtered liquid is tested with ammonia for copper. If the liquid becomes blue, the mixture is cooled, a little more of the sulphurated lime is added, and the process repeated as before, till all the copper has been precipitated from the solution. From the amount of the sulphurated lime which has been found necessary to decompose 1.25 grains of sulphate of copper, the percentage of sulphide of calcium may be easily calculated.

Process II.—Sulphuretted hydrogen was passed through dry, slaked lime for eighteen hours. The resulting substance was of a light green color and had an unpleasant odor similar to the odor of that prepared by Process I., but more resembling that of sulphuretted hydrogen. It contained 5.7 per cent of calcium sulphide.

Process III.—Sulphuretted hydrogen was passed through slaked lime, made into a paste with water, for eighteen hours. The color of the resulting body was dark green, but on heating to redness changed to a light pink color. The smell was similar to the smell of that prepared by process I., but not so strong. On adding acid, sulphurous vapors were given off, indicating the presence of a sulphite. It contained six per cent of calcium sulphide.

Process IV.—Seven parts of finely powdered sulphate of calcium was thoroughly mixed with one part of wood charcoal, also finely powdered, and the mixture heated in an earthen crucible at a red heat till the black color had disappeared. Allowed to cool the resulting sulphurated lime was of a light pink color, similar to the color of that prepared by process III., and had a smell like that of the variety prepared by process I., but stronger. It contained fifty-eight per cent of calcium sulphide.

Reviewing these four processes and their results, the second and third may be at once condemned an account of the greater difficulty of production and the small proportion of calcium sulphide in the sulphurated lime that results. Of the two other processes, No. 4 is the better, for not only do the directions with regard to exclusion of air and mode of heating render the first process more difficult to perform, but the sulphurated lime which results does not contain much more than half the calcium sulphide contained in that produced by the last process, nor is it so elegant a preparation.

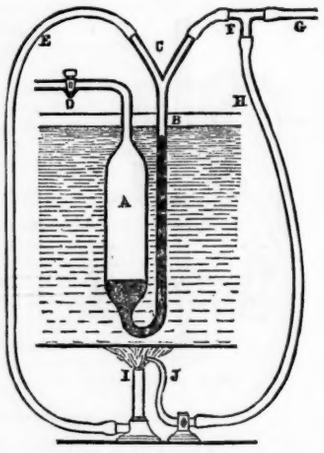
That prepared by the action of charcoal and sulphate of calcium will therefore best satisfy producer, prescriber, and consumer.

* Paper read by Mr. T. S. Dymond at the late British Pharm. Conference.—After *Pharm. Journ.*

[One would infer from the above paper that the writer considers the calcium sulphide to be the active ingredient in the preparation known as sulphurated lime, and that he estimates the therapeutic value to be in proportion to its presence. The editor of this journal has had some experience in the use of both sulphurated lime and calcium sulphide, and he has not found the latter to be therapeutically as active as the former. Thus far the product of the first process is the one upon which most therapeutic experience has been gained. It is the process accepted by homœopathic chemists and is the one adopted by the committee of Revis. of the U. S. P. of 1880. We shall hesitate in accepting Mr. Dymond's opinion of the merits of the products of the fourth-mentioned process until we have the clinical experience of physicians who are competent to judge of its value.—ED. AM. DRUGGIST.]

MERCURIAL HEAT REGULATOR.

N. A. RUDOLPH, M.D., suggests a form of heat regulator,* consisting of an air thermometer so constructed that the rise of mercury in the limb, *B*, will obstruct the flow of gas through its bifurcated extremity. By providing an accurately-fitting stop-cock, *D*, the tension of the air within the chamber, *A*, may be regulated so as to adjust the height of the mercury in the tube *B;* as, for example, when the mercury has been forced high up in *B*, a relatively slight increase in temperature will expand the air in *A* and force the column of mercury to the point of cut-off. In practice, the adjustment is effected by placing the instrument in a medium of the required temperature, and forcing air through the open stop-cock into *A*, until the mercury rises in *B* nearly to the bifurcation, when the stop-cock is closed and the escape of air from *A* prevented.



The pressure of gas employed must be quite low; otherwise, as the mercury rises above the bifurcation, it may be blown out. A simple gas-pressure regulator may, therefore, be useful.

As the flame is extinguished when the mercury rises above the point of bifurcation of the tube, a supplementary burner *J*, with a minute opening, is provided and is supplied with gas from a side-branch on the main pipe at *F*. This gives a flame too small to affect the temperature of the water-bath or air chamber, but sufficient to relight the burner *I* when the flow of gas is again established.

The instrument must be protected from touching the bottom of the retaining vessel, and must be kept vertical. It should be accompanied by a thermometer to verify its adjustment.

It is also well to cover each of the exposed surfaces of mercury with a drop or two of glycerin to prevent oxidation.

* *Sci. Amer. Suppl.*, Oct. 4th, 1884, from *Journ. of Frank. Inst.*

Preparation of Hydrobromic Acid from Zinc Bromide.

IN the *Journ. of the Soc. of Chem. Ind.* (1884, 20), Ad. Sommer describes four different general methods of preparing hydrobromic acid, namely:

1. By direct union of bromine and hydrogen.
2. By decomposition of hydrogen compounds, such as hydrogen sulphide (H_2S), hydriodic acid (HI), ammonia (NH_3), or of oils through bromine.
3. By decomposing bromides of solid metalloids (particularly penta-bromide of phosphorus, PBr_5) through water.
4. By decomposing metallic bromides with acid.

Of the first three classes of methods only that by means of penta-bromide of phosphorus yields satisfactory results.

The author then proposes a new method coming under the head of the fourth class, namely by decomposing bromide of zinc ($ZnBr_2$) with sulphuric acid. The bromide of zinc is easily prepared by action upon metallic (granulated) zinc with bromine water containing an excess of bromine in suspension. The solution is drawn off and quickly concentrated so as to obtain the solid bromide of zinc. In order to obtain the definite hydrate of hydrobromic acid containing 5 molecules of water, the following mixture is distilled in a retort:

	Parts.
Bromide of Zinc	225
Sulphuric Acid (calc. as H_2SO_4)	196
Water, enough so as to amount, with the water accompanying the H_2SO_4, to	180

The molecular proportions are:

$ZnBr_2 + 2H_2SO_4 = ZnSO_4.H_2SO_4 +$
zinc bromide — sulph. acid — acid sulphate of zinc
$+ 2(HBr.5H_2O)$
hydrobromic acid

The product is freed from accompanying traces of sulphuric acid by adding a sufficient quantity of barium carbonate and then again distilled (boiling point 123° C.).

Fluoride of Quinine.

FLUORIDE of quinine has recently been recommended by Dr. Weddell, of Calcutta, in the treatment of enlarged spleen. He has investigated the action of fluoric acid and the fluorides, and has come to the conclusion that, in cases of chronically enlarged spleen, of malarial origin, the effects obtained are very striking. In very small doses, the fluorides have produced marked benefit in cases of rickets and other diseases characterized by malnutrition of the osseous system. Of the salts of fluoric acid, Dr. Weddell considers those of quinine or quinetum (*i. e.*, of the mixed cinchona alkaloids) to be the best.—*Brit. Med. Journ.*, and *Pharm. Journ.*

Saponimentum is a name given by Dieterich, at the suggestion of Hager, to a new form of embrocation, consisting of a spirituous solution of soap in combination with various other substances, such as tincture of arnica, balsam of Peru, etc. The name is a generic one, and its application will be understood by quoting one formula:

Saponimentum Arnicæ.

Stearin soap	0.05 Gms.
Alcohol	0.70 "
Tinct. Arnica (double)	0.25 "
Essent. oil of Arnica	5 drops.

Dissolve and filter.

SIMPLE LABORATORY APPARATUS.

EDWARD HART describes in the *Amer. Chem. Journ.* some simple forms of laboratory apparatus which may be made by those who do not possess special skill.

I. APPARATUS FOR FRACTIONAL DISTILLATION.

The apparatus has the form shown in the figure. The bent tube, before bending, should be at least 2 feet long, but may be of any length, with a corresponding number of bends (the greater the length the more perfect the separation), and an internal diameter of at least ⅜ inch. The principle is the familiar one of the "dephlegmator." The condensed portion here runs down and at each bend passes around the inside of the tube, the vapor passing upward through the ring of descending liquid. A comparison with a Le Bel and Henniger tube, with 4 bulbs, showed very little difference in the rate of separation. The apparatus is preferable to that of Le Bel and Henniger, by reason of its simplicity and small cost. It can be made by an amateur glass blower, while the former can be made only by a skilled workman.

FIG. 2.

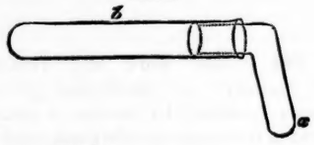


FIG. 1.

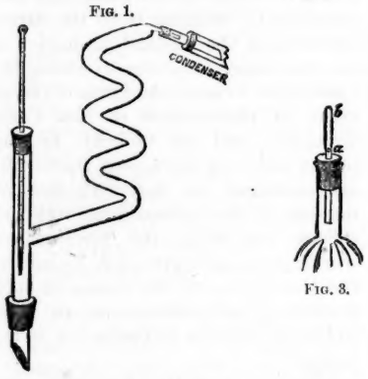


FIG. 3.

II. A RETORT AND RECEIVER FOR SMALL DISTILLATIONS.

It is oftentimes inconvenient to use a retort in making small distillations, chiefly because it takes considerable time to fit up a retort stand. For such small distillations as the preparation of chloro-chromic acid in testing for chlorine, the following arrangement is convenient: The retort tube, *a*, is made by bending a 6-inch test tube. If the tube is heated to redness, and blown into while bending, a neat and strong bend is easily made. In use, the receiver tube, *b*, is held in the hand, while the retort tube is placed above a small flame. For a retort tube made from a 4-inch test tube, a 6-inch test tube makes a receiver of the proper size. For a 6-inch retort tube, an 8-inch test tube is needed.

IIII. A VALVE FOR ALLOWING AIR AND VAPOR TO ESCAPE FROM A FLASK.

The valve shown has been in use for several years, and proves perfectly satisfactory.

The trouble with the old forms (in one of which a slit is made in the side of a rubber tube, and in the second a piece of rubber is pinned over a hole in cork, and this slipped over a tube leading from the flask) is, that however carefully they are made, they get out of order very soon, and become a nuisance. In the permanganate test, the liquid in the flask is rapidly heated as soon as the iron wire is introduced, and as soon as the wire is dissolved, boiled to expel all air, and the tube pushed down so that the opening, *a*, in the tube is inside the opening of the rubber cork, which prevents the air from flowing back into the flask as it cools. The tube is closed at *b*. The opening, *a*, is made either by filing cross-wise with a rat-tail file, or, better, by heating with a pointed flame and blowing an opening in the side of the tube.

Rhubarb in the Kuku-Nor.

THE *Pharmaceutische Zeitung* quotes from an Austrian writer some particulars of a visit to the rhubarb-growing district in the northern slopes of the Kuku-Nor mountains. The soil is described as consisting of layers of rich earth washed down from the higher regions, and the growth of the rhubarb plant as extending from the bottom of the valley up to the limits of the forests, an elevation of about 3,200 meters, and sometimes higher. Not only the Tangutians, but Chinese, from Lining-fu, are here occupied in the industry, the spring time and autumn being considered the most favorable times of the year for digging up the root, on the ground that the root juices are then more powerful. The plant frequently reaches a height of 3 meters or more and consists of a stem 3 or 4 centimetres thick, at the base of which are 3 to 10 dark-green, cordate, divided leaves. Above, the stem bears several branches, attaining ½ meter in length, and bearing groups of small white flowers. In this district, the rhubarb plant flowers in July, the seed ripens in August, and in September it is collected, at the same time as the root, by the Tangutians, who also cultivate the plants in the neighborhood of their tents. The root stock consists of a longish tuber to which are joined numerous long, slender adventitious roots. These latter are cut off during collection as useless; but the principal stock is dried in the sun and then transported to Lining-fu, the principal market of the drug. On the spot, the root is very cheap, enough being obtainable for a few copper coins to last a family a life-time; but transportation from Lining-fu to Pekin increases its cost twenty fold.—*Pharm. Journ.*

A new Method of Determining Nitrogen.

OF the various modern methods proposed for the determination of nitrogen, only that of Kjeldahl has been able to compete with and to excel in accuracy the old method of Will-Varrentrap. The new process yields not only more accurate results, but is more simple, consumes less time, and is applicable to liquids or solids. Besides, as the acid used in the reaction does not appear colored at the end, the process may be conducted even at night time. The following is a description of the method.

1.5 Gm. of the substance which must not contain over 10 per cent of nitrogen, is put into a flask of a capacity of 100 to 150 C.c., with a rather wide and short neck, and 20 C.c. of a mixture added, consisting of 16 C.c. of concentrated and 5 C.c. of fuming sulphuric acid. Afterwards, 2 gm. of anhydrous phosphoric acid are added, and the flask heated on a sand-bath, at first gently, then more strongly, and finally at a temperature at which the acids boil. During the commencement of heating, and as long as any sulphurous acid vapor is given off, the flask must be inclined sideways, so that the spirtings may strike the side of the flask and flow back.

After a certain time, which is about 30 minutes for sulphate of ammonium, 1 hour for guano, 2 to 4 hours for albuminoids, 5 hours for blood, etc., the contents assume a light color, and the largest portion of the nitrogenized substances is converted into sulphate of ammonium. The still remaining, undecomposed portion is then also converted into sulphate of ammonium by adding successive small portions of powdered permanganate of potassium to the hot contents of the flask previously taken from the fire. When the liquid assumes a green color, the operation is terminated.

The contents are now allowed to become cold, then washed into another flask of the capacity of 500–600 C.c., with very short neck, and diluted so as to measure not more than 300 C.c. Next 3 to 5 Gm. of granulated zinc are put in, to prevent bumping, an excess of solution of soda is added, and the flask rapidly connected with a cooler, care being taken that none of the contents of the flask can be squirted over into the tube of the cooler. A half an hour's boiling, with full flame, is sufficient to drive all the ammonia into the receiver (best, an Erlenmeyer flask) previously connected with the cooler, and charged with standard hydrochloric or sulphuric acid.

With proper arrangement, one person may execute 24 to 36 determinations in one day, with this process.—*Pharm. Centralh.* and *Ph. Post.*

[The above process is, of course, inapplicable in such cases where the nitrogen is present (or is eliminated by acids), in form of one of its oxides. A nitrite, for instance, cannot be assayed by it.—ED. A. D.]

New Test for Chlorates in Presence of Chlorides or Nitrates.

MR. FOURMONT has based a new test for detecting chlorates upon the fact that a green color is produced when sulphuric acid is poured upon copper in the presence of the above salt. If a nitrate, in place of chlorate, is present, nitrous acid fumes are given off, and the solution acquires a blue color from the presence of sulphate of copper.

a. Chlorate alone present. If this salt be treated with sulphuric acid and copper, hydrochloric acid is eliminated, and chloride of copper goes into solution which acquires a green color.

Before applying the test, it is, of course, necessary to insure the absence of salts which precipitate silver (such as chlorides, etc.).

b. Chlorates and Nitrates present. The same reaction takes place at first, namely, hydrochloric acid is first eliminated, and a green solution results. But soon afterwards reddish fumes of nitrous acid, etc., are given off, and the solution turns blue. Two minutes suffice to complete the reaction.

c. Chlorates and Chlorides present. The chloride having first been found by means of nitrate of silver, the above reaction may be performed at once, even without first separating the chloride of silver by filtration.

d. Chlorates, Chlorides, and Nitrates present. On adding the copper and sulphuric acid, all three salts are decomposed and hypochloric, hydrochloric, and nitric acid are at the same time disengaged. The last two acids together produce aqua regia which, with the copper, produces only chloride, coloring the solution green. If a hydrochloric acid (or a chloride) has been previously found, the mixture contains both a chloride and a chlorate. On heating now for one or two minutes, the green color disappears and a blue one takes its place. Hence we may conclude that all three salts have been present. Yet the presence of a chloride and a nitrate alone (without a chlorate) may produce the same reaction in the end. For this reason it is safer to remove the chloride first by nitrate of silver, and then to test for the other two salts.—*Journ. de Pharm.* x. (5), (1884), 96.

THE

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CHAS. RICE, PH.D., ASSOCIATE EDITOR.

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EDITORIAL.

PREVIOUS to the receipt of Mr. Bendiner's admirable paper on the æsthetic management of the druggist's window, we had already in course of preparation a series of papers on this and allied topics, which we hope will prove of interest to our readers. There is no doubt that this subject has become one of importance, not only in localities where the pressure of competition is most felt, but to some extent, as well, in less populous neighborhoods. The style of decoration advocated by Mr. Bendiner is admirably adapted for the windows of such establishments as depend largely upon a prescription business, or which cater to the pharmaceutical wants of a class of customers who best appreciate the professional aspects of a pharmacist's calling, but it is safe to say that the majority of the thirty-thousand druggists of this country would apprehend some loss of patronage were they to confine their window display to the æsthetic limits prescribed by him. In view of the customs of trade, it will doubtless be some time before the windows of even the most ultra pharmacists will be reduced to such simple and typical forms. Meanwhile druggists will feel the need for utilizing their show-windows in such manner as not only to impress the passer-by with the good taste and professional character of the proprietor, but also to inform him of the general nature of the wares to be found within the establishment.

The consideration of the subject need not end with the arrangement of the window, but may well extend to the interior. Large sums of money have already been expended in our leading cities upon elaborate fittings of well-known pharmacies. As an example of this we refer to the illustrations in our issue for August of last year. It is not always requisite, however, that the cost should be great to secure an artistic and pleasing effect, for a satisfactory result may often be obtained with simple materials when the design is suitable and harmonious, and the workmanship good. How far we shall be able to accomplish our purpose in *suggesting* means to be employed, remains to be proven, but we shall endeavor to furnish the readers of our forthcoming volume with a variety of hints, which we hope will be of value to them.

Anæsthesia by the Local Use of Hydrochlorate of Cocaine.

IN a letter from Dr. Henry D. Noyes, of New York, published in the *Medical Record* of October 11th, an account is given of experiments made before the Ophthalmological Congress in Heidelberg, to illustrate the power of a two-per-cent solution of hydrochlorate of cocaine to produce local anæsthesia. A medical student of Vienna, named Koller, was led to make trials of the salt for this purpose, on account of the effect he had witnessed when cocaine in solution was pencilled upon the pharynx to render it less susceptible in laryngoscopic examination. A vial of the solution was given by Mr. Koller to Dr. Brettauer, of Trieste, to be used in the presence of the Congress, and several experiments were made which showed that when two drops of the liquid were placed upon the surface of a normal cornea, and the application repeated after an interval of ten minutes, at the end of ten minutes more the sensibility of the cornea was so far diminished that it could be pressed with a probe; the cornea and surface of the eye-ball and eye-lids adjoining could be rubbed; a speculum could be inserted and the lids widely separated, and the conjunctiva could even be seized with fixation forceps, and the eye moved in various directions without causing the patient notable discomfort.

Since the publication of Dr. Noyes' letter, several reports have appeared in the *Medical Record* and *New York Medical Journal* which seem to show that this discovery of the anæsthetic power of the drug is of the greatest importance. Operations have been made upon the eye which formerly demanded the inhalation of chloroform or ether, but which were painless, owing to the local effect of a two-per-cent solution of hydrochlorate of cocaine. Dr. H. Knapp reports a number of experiments which show, not only the mydriatic effect of the drug (which we have already referred to on p. 113), but also confirm the statements before made that the use of a two or four-per-cent solution in the eye produces neither pain nor discomfort; causes, on the contrary, loss of sensibility to pain, commencing within three minutes, increasing from ten to twenty minutes, and disappearing within a half-hour.

The eye is not the only region which is thus affected; for, according to Dr. Knapp's experiments, the ear, mouth, tongue, pharynx, nose, larynx, trachea, urethra, and rectum are similarly influenced in varying degrees.

There is reason to believe that this discovery will prove to be one of the greatest importance.

THE "New York and Brooklyn Formulary" of unofficinal preparations is about to receive a revision, and is to be considerably enlarged preparatory to bringing it to the direct attention of the medical profession in the two cities. In order to enable the Committee to meet the wants of physicians, all pharmacists of New York, Brooklyn, and the vicinity, or any others who may have used the formulas contained in the work, are requested: 1. To communicate any criticisms respecting the formulas or working processes given; 2. To inform the Committee of the names of such unofficinal preparations as, in their judgment, should be contained in the book.

Information of the character mentioned is of the greatest importance to the Committee, and will be thankfully received. Working formulas for the preparations named will also be very acceptable. Communications may be addressed to the Formula Committee at the College of Pharmacy, 209 and 211 East 23d street.

ON advertising page 59, last line, in the report of the meeting of the Illinois Pharmaceutical Association, Sunday should have been Tuesday. It is not often that we have any occasion to correct an error of the printer, but this one demands attention for reasons that are quite obvious.

Menthol Pencils.—The *Medical Record* says that these pencils or cones, whose therapeutic value is very limited at best, have become so popular that great adulterations or substitutions are now practised. The ordinary oil of peppermint is probably substituted for the menthol, in large part, at least. [The editor of the journal does not mention the source of this information, and we are inclined to think that he is misinformed.—ED. AMER. DRUG.]

Notes on Drugs and Chemicals.*

Agaricin.—This new remedy, recently recommended by English physicians in cases of intense sweating, does not meet with success. Recent reports of German clinicists show that it cannot compete with atropine and similar substances.

Alcohol.—New York exported from Jan. 1st to July 1st, 1884, 2,244,598 gallons against 1,573,482 gallons during the same period of 1883. Of the above quantities there were sent:

	in 1884.	in 1883.
To France	801,622	346,785
" Germany	451,384	4,615
" Italy	30,469	301,644
" Spain	149,321	373,947

Antipyrin (or *oxydimethylchinizine*)—first prepared by Dr. Knorr, of Erlangen, appears to push its antipyretic predecessor, *kairine*, somewhat into the back-ground. Its chief advantages are said to be its less disagreeable taste and greater efficiency. A great future is prophesied for this remedy.

Araroba has been supplied in large quantities from Brazil. On the effect of air and light upon its peculiar constituent and the probable percentage of chrysophanic acid, a competent authority will shortly make a report.

Angostura Bark is in increased demand for bitters, though many of these go by the name of Angostura Bitters, when they contain none of this bark at all.

Azolitmin.—The pure coloring matter of litmus, freed from the brown body accompanying it in litmus, is highly to be recommended for the preparation of the tincture or of very delicate test-paper, in spite of its high price. For this purpose the coloring matter is best dissolved in water containing a minute quantity of soda, and the solution cautiously brought to the proper tint by means of oxalic acid.

Balsam of Peru.—The low price ruling at the beginning of this year fluctuated but slightly since then, although unfavorable reports on this year's output at San Salvador reached the market. On the quantity of balsam exported from Oct. 1st, 1882, to Sept. 30th, 1883, the following statistics in (Spanish pounds) are sent from Santa Anna:

Exported to	from: *Acajutla*	*La Libertad*	*Total*
England	6,915	6,825	13,740
Germany	10,960	8,006	18,966
France†	11,656	8,809	20,465
U. S.	1,606	2,391	3,997
Belgium	460	—	460
Italy	—	395	395
Peru	—	194	194
Panama	69	20	89
Total	31,666	26,640	58,306

The total annual yield during the past 8 years had been in Spanish pounds:

1883	58,306	1879	32,414
1882	54,277	1878	32,094
1881	42,220	1877	57,937
1880	33,725	1876	56,402

It is reported that the balsam trees have been severely taxed during 1882 and 1883, and that they need rest; at the same time many trees are reported killed by the cold north-winds at the end of 1883 and beginning of 1884; hence a further decline in price is not to be expected.

The test prescribed by the German Pharm. (with benzin and nitric acid), is now scarcely recognized as authoritative. [See p. 215 in this issue.—ED. AM. DRUG.]

Carbolic Acid.—The demand for this article, both in liquid and in crystals, has been extraordinary during the summer months in consequence of the advent of cholera in Southern France.

Carnauba Wax is being shipped in large quantities. It being the hardest vegetable wax known, it has found employment for many purposes, and may now be had in a bleached state.

Cassia Bark.—The large stocks of this article in London (on August 1st, 1884, about 124,560 chests, against 106,888 in 1883) do not permit us to expect higher prices until the rate of production is diminished. The price has been but slightly and only for a short time influenced by the reports of the warlike proceedings between France and China.

Cinchona.—Though we have been accustomed of late years, when speaking of this article, to make reports of excessive speculations, unexpected fluctuations, and private coalition, yet at no time has a reverse been more sudden than that produced by the failure of the large quinine factory of Milan, in August, and, a few days later, that of the largest bark dealers in London. For several days the leading markets in London and New York were highly excited, and a complete panic was threatened. The situation was, indeed, very precarious, for the Milan factory had accumulated stocks of much over 20,000 kilos of quinine, and the London bark dealer about 40,000 bales of cuprea barks. As will be remembered, a very decided fall in the price of quinine took place after the collapse (Jan. 21st) of the league of the quinine manufacturers, while the price of the bark took a decided rise. It would seem as if the Milan factory had based upon this a fresh speculation in order to recover the large concealed losses of former similar operations; it was attempted to regain the favor of purchasers by cheap offers, and when it was expected that the usual summer's supply would soon be called for, a large lot of bark—it is said 18,000 bales—were withdrawn from market in order to screw up the price of bark again. Even during May and June the attempt to inflate the artificial price of bark was still successful, but during July the market became unsteady, each sale soon brought lower prices, and after the catastrophe had taken place, Ceylon barks could not be sold for more than 5 to 6 pence per unit [1% quinine].

The capital of the Milan factory (six millions of francs) is said to have been lost during a few years, which fact is well calculated to permit a conclusion to be drawn regarding the unsound state of the bark and quinine market. It is impossible at present to form any definite judgment of the immediate future. It appears that certain powerful banking institutions find it to their interest not to throw the large stocks of quinine suddenly upon the market, and unless an advance is forced by a purchase and withdrawal from market of any offered lots of bark or quinine, we may hope that we are at the commencement of a period of stable and moderate prices. The present price of quinine has occurred twice before, namely, about or shortly after 1850, and in 1870. It was owing to the long-continued revolution in Colombia and the constantly diminishing supplies from this country, that the price for the unit [1%] of quinine rose, in 1879, to 1s. 6d. or even 2s., that is, to four times its present value. Since then, the supply countries have been multiplied and the amount of bark shipped, for instance, from Ceylon alone, is larger now than that ever exported in one year from South America.

EXPORTS FROM CEYLON.		LBS.
Oct. 1, 1883, to	July 17, 1884,	8,313,062
Oct. 1, 1882, "	July 17, 1883,	5,429,474
Oct. 1, 1881, "	July 17, 1882,	1,972,270
Oct. 1, 1880, "	July 17, 1881,	918,030

Coca leaves.—Handsome green leaves are still quite rare. Large amounts have been laid down in Hamburg, but nearly all are of medium quality only.

Cocaine.—This alkaloid has been used more frequently of late; it is reported to have been used, internally, with good success in cases of great exhaustion, after insolation, loss of blood, or diarrhœa.

Cod-Liver Oil.—Gehe & Co. indorse the test for the genuineness of cod-liver oil proposed by Kremal [see page 217 of this number], by means of nitric acid of the spec. gr. 1.500. They warn, however, against the use of any stronger acid, since this will cause a violent foaming and will color the residue brown, even though the oil be perfectly pure.

Coto bark exists in the market at present only in the variety "para." True coto bark is entirely exhausted and new supplies are not expected for some time. The two barks can scarcely be distinguished pharmacognostically; only by means of the glucoside contained in the bark are they distinguishable. Cotoin melts at 124° C., and is slowly colored blood-red by cold nitric acid, quickly so by the hot acid; paracotoin melts at 152° C., and is only rendered yellow by the acid.

Elaterin.—The British Pharmacopœia demands that elaterium shall contain at least 25% of elaterin. Gehe & Co. have *never* been able to observe such a high percentage, 12 to 15 per cent being as high as they could obtain.

Ergot.—Last year's collection in Russia had been reported to be quite below the average, but the quantities brought to market showed the report to be unfounded, and the value of the article was much depressed. Offers of this year's collection have not yet been made, which would indicate a probable deficiency of yield, and an eventual advance.

Ergotinin.—The solution of the citrate of Gehe & Co.'s alkaloid has found much favor with practitioners. One of its advantages is that it does not produce abscesses. The dose has heretofore been stated to be 0.2 to 0.7 cm. (3 to 11 minims) of a solution of 1 in 1,000; but it seems that it could be somewhat increased.

Gallic acid.—One sample offered to Gehe & Co. turned out to contain 50% of sulphate of aluminium.

Guarana is now completely out of the market since the last small stocks have been bought up at high prices. Brazil itself consumes so much of the article that none can be obtained at present for export.

Helenin, or the camphor of the oil obtained from elecampane (which latter was formerly in high repute), has been used with apparent success in old catarrhs and incipient phthisis. It is given in doses of 0.01 Gm. (about ¼ grain).

Hydrochinon (*hydroquinone*, or *paradihydroxyl-benzol*, see NEW. REM., 1880, 269), though high in price, has nevertheless been used in considerable quantity, in comparison with other antipyretics. Its dose is stated to be 1 Gm., and this quantity is said to produce a remarkably prompt reduction of temperature and pulse.

Insect Powder.—The flowers of Chrysanthemum have been scarcer during the past year, and an increase of price is expected. Wild, unexpanded flowers are particularly scarce, and their price, in Trieste, has advanced from 110 to 120 florins.

Jalap.—The attempts to cultivate jalap have met with moderate success in the botanic garden at Ceylon. Nevertheless, the experimental station at Hakgala does not appear to have been situated high enough, since still better results have been obtained in the Nilgiris at an altitude of 7,000 feet.

Jequirity Seeds.—The use of this drug in ophthalmic practice has greatly diminished since the warning given by Dr. Vossius, who declares the employment of the seed as dangerous to vision, and therefore unpermissible. In transatlantic [meaning American] countries, the seeds are now being

* From the Handelsbericht of Gehe & Co., Dresden, for September, 1884.

† Half of this was reshipped to Hamburg.

used also in the treatment of lupus or other skin diseases.

Kairine is much less asked for than formerly, no doubt partly in consequence of its very disagreeable taste. An Italian practitioner has tried the remedy hypodermically, and states that he has obtained excellent results.

Lycopodium has shown an upward tendency, since the stocks from the small harvest of last year began to dwindle. Large orders arriving from the U. S. since June, chiefly for pyrotechnic uses during the presidential campaign, raised the price 50 per cent, though the cessation of the demand has again brought about a decline.

Naphthalin.—Besides its extensive use for destroying insects, this substance is now also used internally, and is reported to have been very serviceable in catarrh of the bladder.

Oil of Mustard (essential) has ruled very low, so that it scarcely pays to prepare the genuine oil from Dutch mustard seed of this year's harvest.

Osmic Acid, used externally for destroying certain morbid growths, and internally in epilepsy, has been in increased demand, though the high price still deters many from its use.

Papayotin, as an antidiphtheric, has maintained its reputation. Gehe & Co. have induced their correspondents in South America to adopt the following process for the preparation of a crude papayotin, which is further purified on its arrival in Europe by means of bone-black: The fresh, milky juice of the fruit of *Carica Papaya* is diluted with water, and, when the resinous particles have separated, the liquid is filtered; or the liquid is mixed with just enough alcohol to produce a slight precipitation of papayotin, which carries down with it all impurities. The clear liquid is now poured into about seven times its volume of 90% alcohol, the resulting precipitate strongly expressed on muslin and dried at a gentle heat. If the aqueous solution must be kept so long as to endanger its keeping qualities, it should be preserved by the addition of a little chloroform. [See also p. 205.]

Piscidia Erythrina.—The failures reported in regard to this new narcotic, are said to be due to the fact that the bark of the stem has been often employed in place of the bark of the root.

Quinine Sulphate.—The April report mentioned the collapse of the coalition existing among the manufactures which resulted in a reduction of the price of quinine from 250 marks to 160 marks per kilo (or about $1.67 to $1.07 per oz.). The market thereby became more quiet and this was not even much disturbed by the burning of Powers and Weightman's factory in Philadelphia, since the Milan factory immediately undertook to fill its orders at the cost of production. The statistical position of the bark-market had likewise become somewhat improved: arrivals had diminished and stock had decreased, on July 1st, by about 30,000 bales, compared with January 1st. Nevertheless no real confidence was established, and a sort of uneasiness prevailed which was partly engendered by the knowledge that there were still existing considerable stocks of quinine and bark dating from the preceding period of speculation, which the owners did not like to part with.

It was probably the continued small demand for quinine which prevented the speculators from taking active steps. Hence they restricted themselves to depressing the price still further, in order to prepare the market for an approaching new *coup*. But the diminution of value thus produced (amounting to millions) in their own large stocks produced at much higher prices, hastened the catastrophe, which could be only a question of time after the collapse of the combination, at least for *some* of the participants. In consequence of several banking houses refusing further credit, large quantities of quinine (21,000 kilos) having already been hypothecated, the game was finally lost. The first to collapse was the Milan factory, the largest and most renowned in the world, and as a consequence the largest dealers of bark in London went under. [Private information received by us show still other causes, which afford a sad picture of commercial recklessness, eagerness to retrieve losses at any price, resulting unscrupulousness in the means selected to recover lost ground, and, finally, downright dishonesty. It is best to be charitable in this case, and to throw the mantle of silence upon the whole business, although the sad story is well known among those who have a chance to look below the surface.—ED. AM. DRUGG.]

For the present it is not certain what permanent effect, if any, these occurrences will have upon the quinine market. At first the latter was disorganized, because it was feared that the large quantities of quinine still held as collateral by the bankers, as well as the large stocks of bark, would at once be thrown open for public sale, which would undoubtedly have completely upset the market. It was, however, soon observed that the creditors endeavored to hold the market steady, in order to secure the highest possible prices for the hypothecated quinine. In the beginning, only a portion, consisting of 120,000 oz., was put up at auction, which was sold at comparatively fair prices, mostly for account of the U. S., and it is expected that the remainder will be absorbed in the same manner, since the U. S. are largely dependent upon imported stock, at least until the Philadelphia factory is rebuilt, which cannot be before about February of next year. All of these circumstances have contributed to improve the situation to a certain extent, and at present it would seem as if the market became steady again.

Salicylic Acid is also again in increased demand. Two new patents for its preparation have been taken out, one of which claims the use of carbon oxychloride in place of carbonic acid gas, while the other constitutes an important improvement of Kolbe's original process, permitting twice the quantity of salicylic acid to be manufactured from the same amount of materials as heretofore. This latter patent has been acquired by the present owners of Kolbe's patent. Both patents are based upon investigations and discoveries made in the laboratory of the polytechnic school at Dresden, in the course of studies on certain hitherto not well-understood reactions occurring in Kolbe's process.

Santonin.—The manufacture of this glucoside from so-called Levant wormseed has successively been transferred from interior manufacturing towns in Europe to sea-coast places, because the carriage by rail in the case of such a cheap, crude drug was found too heavy a tax. Afterwards a factory established in Orenburg, nearer to the source of production of the drug, inaugurated the period when the manufacture of santonin will be entirely transferred to the East, and still more recently an immense factory has been built at Tashkent (in Turkestan), with Russian capital, which being situated in the midst of Kirghis steppes where the drug grows, will have still better opportunities for monopolizing the trade. The machines for the factory have been made in Hamburg, and are intended to be put up ready for work during the fall of this year. [See p. 204.]

Sodium Salicylate.—The consumption of this important remedy, which is called by an Italian physician, quite appropriately, "the quinine of the poor" has again increased considerably. Of late, it appears to be used also in the arts to some extent.

Tjen Tjan Gelatin.—This vegetable gelatin, which is much in demand for sizing fabrics and in confectionery, is the very best medium for the artificial cultivation of bacteria, being much preferable to animal gelatin.

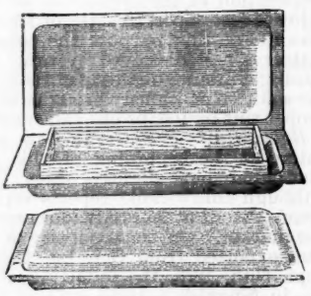
Winter's Bark is much in demand, and Gehe & Co. shortly expect an invoice of the true bark (from Drynn's Winter).

Ylang Ylang Oil has become very scarce and dear, owing to storms in Manilla which have interfered with the distillation.

Solution of Subacetate of Lead as a Test for Cotton-Seed Oil.

MR. S. S. BRADFORD* says that, after an experience of over ten years in testing animal and vegetable oils, he is convinced of the value of solution of subacetate of lead as a test for the presence of cotton-seed oil. When these two are mixed, a red color is produced which is peculiar to this oil and will indicate its presence in olive or cod-liver oil, so that it will serve as a reliable test for its presence as an adulterant in them.

Moreover, a mixture of solution of subacetate of lead with cod-liver oil causes saponification *at once* when shaken in the cold. When cotton-seed or any other oil is present, this saponification will not take place, no matter how long the mixture is allowed to stand, or how well it is shaken.



POSTAL BOX.

THE illustrations show a convenient package for mailing small articles, which is made of two pieces of straw board, moulded, by immersion in hot water and pressure, into a dish-like form. Boxes similar to these have been in use in this country for some time; but a German modification, shown in the upper figure, consists in a light framework of wood which serves to protect still further the contents. The edges of the box, if need be, can readily be fastened together with strips of adhesive paper or muslin.

What Becomes of Kairine in the Organism?

THIS question has been studied by Mering by careful analysis of the urine of patients who had received 3 to 4 Gm. of kairine daily, and he ascertained that kairine enters into a combination with sulphuric acid in the organism, being eliminated as kairine sulphate, in the same manner as phenol is discharged in the form of phenol sulphate.

The whole of the kairine, however, cannot be thus accounted for; a portion is probably further oxidized, since the kairine-urine frequently has a yellowish-green color, and becomes darker on exposure to air. After large doses, such urine also turns polarized light to the left, and reacts with Fehling's solution.—*Chem. Centralbl.*

* *Amer. Journ. of Pharm.*

Notes on Some Essential Oils.

MR. JOHN WILLIAMS, in a paper read before the British Pharmaceutical Conference, says that, having occasion to prepare some anhydrous and colorless essential oils for optical purposes, he observed some curious facts of interest to pharmacists. The samples were obtained from a most respectable and reliable source as of good commercial quality, and could be taken as fair averages of the best oils usually found in commerce. He assumed, also, that they were quite free from anything in the shape of adulteration.

Under ordinary circumstances, essential oils are distilled with the aid of water, or in a current of steam; but as the object was to obtain anhydrous oils, it was evident that such a process could not be adopted. On the other hand, when essential oils are distilled over a naked gas flame or other similar source of heat, there is great risk, indeed almost a certainty, of over-heating, and of the product consequently becoming contaminated with empyreumatic matter.

This difficulty was overcome in a very simple manner by employing a bath of fusible metal, and thus avoiding the possibility of the oil becoming overheated at any point. The fusible alloy employed was composed of bismuth, cadmium, tin, and lead. It melts at 140° F., or far below the boiling point of water. Is is true it is a rather expensive material when compared with ordinary solder which is generally used for this purpose, but it presents the great advantage that there is little or no danger of the retort cracking when it is plunged into the melted bath, whereas with solder this danger is considerable. The alloy was contained in an iron basin into which the retort could be lowered or raised at will. No Liebig's condenser is required or advisable, for so high is the temporature at which these essential oils boil, ranging from 160° to 240° C. (320° F., 464° F.), and so easily condensable and so little dispersive are their vapors, that no water is required for their condensation. In fact the end of the retort simply requires to be inserted for an inch or two inside a somewhat larger tube, two or three feet in length; and with a flask at the end to act as receiver, the apparatus is complete. No cork or luting is required; simply a little soft paper wrapped round the joint will be found sufficient to keep in the vapor of the oil.

When essential oils of the kind experimented upon are heated in the manner described, there first comes over a mixture of aqueous vapor and oil. This oil boils at a comparatively low temperature, and although it is of a pleasant flavor it can be easily distinguished from the true oil. It, however, does not occur in large quantity in any oil examined; the utmost would be from ½ oz. to 1 oz., from a pound of natural oil.

After a time, the neck of the retort is seen to clear from streaks and striæ, and the boiling point of the oil rises somewhat. It is then necessary to change the receiver, when a considerable quantity of the anhydrous oil distils over, generally amounting to quite one-half, frequently more, of the oil operated upon. In fact, as a rule this portion is by far the largest fraction. The boiling point is at no time constant or steady, but is continually, although slowly, rising throughout the distillation. After a time the temperature is observed to rise more rapidly, when the receiver has to be again changed, as a quantity (comparatively small, it is true) of high boiling and colored oil now passed over, the boiling point rising in many cases to 240° C. or upwards; on one occasion nearly 300° C. was reached, but that was not with one of the oils now referred to.

It is not advisable to continue to apply heat beyond the point at which the high boiling oil comes over very slowly and in small quantity, for if that be done, white, smoke-like clouds form in the retort, consisting of very curious and interesting resinous or oleoresinous bodies; possibly they have not been produced before in a state in which they could be examined, as by the ordinary mode of manipulation they would either be left behind in the water or be so changed by direct heat that their real nature could not be distinguished. The quantity of resinous matter produced varies very much with different oils, but as a rule it is much greater than was anticipated.

The anhydrous essential oils, to produce which was the main object in view, as obtained in the way described, were slightly colored, or became so after being kept a few days. To obtain them in a colorless condition, it was found necessary to redistil them a second time, when, with the exception of the geranium oil, which still came over slightly colored, the whole were obtained in a perfectly colorless state. Upon the second redistillation of the anhydrous oils, a little aqueous oil came over at first, proving that the oils obtained in the first redistillation were not quite anhydrous. A little resinous residue was left in the retort, but the amount was very small in comparison to that remaining after the first redistillation. This residue no doubt was contained in its present state in the original oil, and was not a product of decomposition.

Oil of orange yielded a large quantity of pure anhydrous oil, but little of higher boiling point, and a brown oily residue not so offensive as some of the others.

Lemon oil yielded a large quantity of anhydrous oil. The residue was dark-brown and solid, but not offensive in smell.

Oil of bergamot yielded a large quantity of pure oil. The high boiling oil was colored, and not pleasant. The residue was very dark-colored, but liquid, and very offensive in smell.

Oil of origanum yielded a large quantity of pure oil. The residual oil was very dark-colored, more liquid than the bergamot, but not so offensive in smell.

Geranium oil turned out very badly. The pure anhydrous oil was comparatively small in quantity and still colored. The high boiling oil was in small quantity and not nice. The residual oil amounted to quite one-half the original oil; it was very dark-colored and very offensive.

The original *oil of lavender* was of American origin. The amount of pure anhydrous oil obtained was smaller than from some of the other oils. The high boiling oil was very much colored and not of pleasant flavor. The residual matter was nearly black, of the consistence of treacle and very offensive.

Oil of peppermint was also American. It yielded about the same proportion of pure anhydrous oil as the oil of lavender. The high boiling oil was still distinctly peppermint, but coarse in flavor. The residual oil was light-brown and thick; it was not so offensive as some of the other residues, but was very inferior to ordinary oil of peppermint in flavor.

With respect to the pure anhydrous oils, there can be no doubt that a great improvement had taken place in their flavor. They will perhaps strike most persons as not being so strong as the original oils, but that is due to their having been deprived of the coarse, though probably powerful smell of the high-boiling oils and the residual matter. In fact, when the residual oleoresins are examined, it will be quite understood how the flavor of the various oils must be improved by the removal of such crude and, in many cases, really offensive matter.

At present it is not known how long these essential anhydrous oils will keep, that is, how long they will retain their superior qualities if they have any, or in what time they will again become oxidized and converted back into the state of the original oils. It is *likely* that anhydrous oils will keep for almost an indefinite time, and that the oxidation and change of these bodies is due to the presence of small traces of water.

Note on China Bicolorata.*

THIS bark comes form Tecamez or Atacamez, which lies west of Harra on the western declivity of the Catochaca, in Ecuador, where it was discovered in 1793 by Dr. D. Brown. It was recommended as a useful tonic by Dr. Bresa, of Padua, in 1824. Authorities on cinchona barks have referred it to a *Cinchona* or *Exostemma*, to *Henostemum* or *Pinkneya*. There is a greater probability that it is a *Remijia*.

Dr. A. Vogel has pointed out that the microscopical structure of the bark closely resembles that of *Remijia pedunculata*, or cuprea bark. Humbolt, who saw the tree, believed that it was a *Cinchona* or *Exostemma*. The genus *Cinchona* at the time included the *Remijias*. In Lambert's illustration of the leaves of the Tecamez bark, the leaves are of a peculiarly pointed form, closely tallying with the form of the leaves of *Remijia pedunculata*, as figured by Karsten. These fragments of evidence seem never to have been noticed together.

Small parcels of a bark very unlike ordinary cuprea bark have been imported with the latter. It seems to be almost midway in character between *China bicolorata* and *pedunculata*.

The analysis of the bark gives results which contradict the experience of previous observers. It contains chinonin and chinic acid, which were actually identified, also quinine, .255 per cent, equal to .34 per cent of quinine sulphate; cinchonine, .06; quinidine, .05, and amorphous alkaloids, .39. These are cinchona or remijia alkaloids, and the absence of cinchonidine is negative evidence in favor of the remijia theory. The conclusion can hardly fail to be that the *China bicolorata* is a true *Remijia*, and it is suggested that its botanical source should be known henceforth as *Remijia bicolorata*.

* Abstract of paper read before the Brit. Pharm. Conference by J. Hodgkin. After *Chem. and Drug.*

Inhalation of the Vapor of Glycerin for Cough.

OF interest in connection with the article on page 206, we quote the following abstract from the *Revue Médicale*, of Aug. 30th, which appears in the *Medical Record:*—"Professor Traster employs with great benefit the vapor of glycerin for the alleviation of a fatiguing or painful cough. A couple of ounces of glycerin are put in a porcelain dish and evaporated over an alcohol lamp. A large quantity of vapor is thus given off which is inhaled with great relief by patients, especially consumptives who are troubled with a harassing cough."

It is very safe to say that this can hardly be the case, for without the presence of watery vapor, such a procedure would be more than likely to lead to decomposition of the glycerin and the formation of acreolin, the inhalation of which would be anything *but* soothing.—ED. AM. DRUG.

Notes on Essential Oils.*

Oil of Bay.—Since its first introduction, the consumption of this oil has increased tenfold. Its solution in alcohol presents some difficulties. Even absolute alcohol does not dissolve it to a clear solution, and it is, therefore, best to add the oil at once to dilute alcohol (50%), and produce a clear solution by filtration.

[The original pamphlet of Schimmel & Co. says here: "The Pharmacopœia of the United States (*sic*) likewise praises the refreshing effects of an alcoholic solution of oil of bay in cases of nervous headache, faintness, and other nervous disorders, applied on soft linen to the head and forehead. It is also highly recommended by the same authority in the form of spray in the room of the sick or the convalescent patient." The above passage is, of course, taken from the "United States Dispensatory," and not from the official U. S. Pharmacopœia, which does not contain therapeutic hints.—ED.]

Oil of Birch (crude).—There is some uncertainty about the true source of this article. At all events, no guarantee can be given that it is actually obtained from the birch, as is asserted by the Polish dealers.

Oil of Cajuput.—Several pharmacopœias consider the green color of the oil, which is due to a trace of copper, as harmless. The Dutch Government, however, supplies the drug stores in Java with colorless oil only, and Japan only permits the importation of the latter.

Oil of Camphor, Japanese.—This by-product, obtained during the manufacture of camphor, arrives in larger quantities than formerly. Invoices differ very much in color and odor. When burned, it yields a very large quantity of soot, and this seems to suggest that it has been long used in China and Japan for the production of the fine pigment known as "india-ink."

Oil of Florida Cedarwood, so highly valued as a fine perfume for soaps, has been produced in larger quantities and at lower prices. If the demand should increase, it could be furnished even lower. This oil is frequently used in Europe as an adulterant for oil of cassia, citronella, and sandal wood. In the U. S., where it is obtained as a by-product in the drying-rooms of lead-pencil works, it is even used to adulturate oil of peppermint.

Oil of Citronella.—When pure, this oil is of a bright, wine-yellow color; on coming in contact with light and air it acquires a fine green color. A good test for its genuineness is its behavior towards alcohol of 75%. One volume of the oil must form an absolutely clear solution with 2, or at most, 2½ volumes of 75% alcohol at a temperature not below 20° C. (68° F.). This test invariably shows the presence of any fatty oils, and of oil of cedar, of turpentine, and other essential oils.

Oil of Copaiba.—Large lots of a colorless oil of "copaiba" arrived at Hamburg, which turned out to be derived from East Indian balsam (Gurjun balsam), and was offered at incredibly low prices. This oil is also largely used for purposes of adulteration.

Oil of Mandarin Orange.—A few kilos only of this oil, obtained from the rind of the Mandarin orange (*Citrus Nobilis*) are available, and even this small quantity had to be specially ordered by Schimmel & Co. It is said to be almost indispensable in the preparation of certain fine perfumes, "Ess Bouquet," for instance.

Oil of Eucalyptus.—The Australian supply having become very irregular and also unreliable as to quality and source of oil, Messrs. Schimmel & Co. have succeeded in finding a new place of production from which they will obtain the genuine oil of *Eucalyptus globulus* and no other. [We do not know where the firm succeeded in finding this source, outside of Australia, but if we had ourselves been obliged to search, we would have looked for it in Algiers, where Eucalyptus has been abundantly planted for a number of years.—ED. AM. DRUGGIST.] The genuine oil contains the true eucalyptol (spec. gr. 0.918; boiling point, 170°–173° C.) in considerable proportion, while the Australian oil [of commerce?] contains little or none at all, and is, therefore, medicinally valueless.

The Australian eucalyptus oil (the exact source of which is always uncertain), and the genuine oil of Eucalyptus globulus are distinguished by the following properties:

Australian Oil.	*Gen. E. globulus Oil.*
1. Mixed with alcohol even in the proportion of 1 to 15 yields a turbid solution.	Yields a clear solution with alcohol in all proportion.
2. Deflagrates with iodine.	Does not deflagrate.
3. In contact with sodium turns red.	In contact with sodium turns yellow.
4. Sp. gr. 0.860–0.870.	0.900–0.925.

Oil of Geranium, Turkish (or Oil of Palmarosa).—The quality of the oil at present on the market is the finest obtainable, and the price is lower than it has been for years.

Oil of Hops.—This seems to be chiefly used in the preparation of the well-known "Hop bitters."

Oil of Lavender, Mitcham.—The number of perfumers who indulge in the purchase of this expensive commodity becomes smaller every year. Schimmel & Co. state that, in their opinion, a skilful perfumer can produce the very same effect by taking the finest French oil of lavender as a base. At least, the odor of the Mitcham oil is very closely imitated by adding to French oil of lavender some of the finest oil of rosemary and a very little oil of cajuput, both in proper proportion.

Oil of Linaloe—is still chiefly consumed in the preparation of "Lily of the Valley" bouquet and of certain toilet soaps. This is one of the essential oils which improves by being kept for one or two years before being used.

Oil of Mirbane (artificial Oil of Bitter Almonds).—True oil of mirbane is nitrobenzol. Owing to the great depression in the price of benzol, the oil of mirbane has fallen about one-third in price. During the preceding year, benzol ruled very high and so did its derivative, the oil of mirbane. But even during the period of the high price of benzol, the *English Oil of Mirbane* ruled very low, and this for the simple reason that it is *not nitrobenzol* (sp. gr. 1.200) at all, but *nitrotoluol* (sp. gr. 1.160). This fact also also accounts for the peculiar disagreeable odor of the English article, which seems to be so little liked that English consumers often import a higher-priced foreign product.

Oil of Horsemint.—This new article is likewise introduced by the New York agents of the house. It is distilled from the fresh herb of *Monarda punctata* and has an odor intermediate between that of oil of thyme and oil of Spanish hops [*Origanum creticum*]. Even with moderate cold, it separates a crystalline substance, which, according to Prof. Flückiger, is identical with thymol. [The original, from which we translate, again refers here to the "United States Pharmacopœia" as a source of therapeutic information, when it should have said "United States Dispensatory," the latter being the unofficial commentary upon the official pharmacopœia, which latter contains not a single therapeutic remark.—ED. AM. DRUG.]

Oil of Orris Root.—This exquisite and expensive perfume (solid at ordinary temperatures) has been again somewhat lowered in price and will, no doubt, find more universal employment. Schimmel & Co. state that they produce about 2 kilos (4 lbs. 6 oz.) of the pure oil per week.

Certain competitors have been offering a "liquid oil of orris" at greatly reduced rates. This is merely a solution of the pure oil in oil of bergamot or oil of cedar, and is certainly not economical to buy, as everybody can dissolve the genuine oil himself.

Oil of Wild Garlic.—Schimmel & Co. have extracted the oil from a weed (*Allium ursinum*) which had been pulled up in large quantities by government order. It is merely offered for scientific investigations, and the firm declines having anything further to do with it, as its preparation is one of the most disagreeable operations they had ever experienced.

Oil of Curled Mint.—The recent total deficiency of this oil in the market will probably be shortly relieved by the American agents of Schimmel & Co. (Messrs. Fritzsche Bros. of New York). It seems, therefore, that the cultivation of this species of mint has been regularly undertaken here.

Oil of Petitgrains (Paraguay).—This brand has in a few years conquered the market and has become a serious rival to the French product. Direct shipments from the principal producers in Asuncion will hereafter reach Schimmel & Co. The production is said to be capable of considerable extension; already it amounts to about 2,000 kilos per year. The same producer also obtains a few kilos of oil of neroli, which are, however, bespoken or bought up by houses in Buenos Ayres.

Oil of Pepper.—As an explanation why the house has been able to sell this oil at such low prices that they appear out of proportion to the price of the product, the interesting fact is adduced that the oil is obtained as a by-product in the preparation of the exquisite perfume "heliotropin," which is in reality piperonal.

Oil of Peppermint.—All sorts of rumors are circulating as to future contingencies affecting the price of this oil. An advance is prophesied by some, for instance, on the ground that a large portion of the American oil will hereafter be utilized for the manufacture of *menthol*. Messrs. Schimmel & Co. express themselves, regarding this point, as follows:

"All reports concerning the manufacture of menthol from American oil of peppermint we regard as myths. According to experiments undertaken in our own laboratories, the practical manufacture is rendered impossible by the immense quantities of deteriorated oil of peppermint which are obtained as by-products. But if the attempt were made to throw such oil, deprived of menthol, back on the market as genuine oil of peppermint, every connoisseur will certainly remonstrate with energy against its acceptance. At all events, it is possible that the manufacture of menthol will be attempted; only it would then be very necessary to be exceedingly cautious in purchasing the oil. And if exhausted oil is eventually rejected by the public, the whole undertaking will collapse, even granted that it will be really carried out in practice, which, according to our observations, must be declared improbable." [We think the reputation of the manufacturer (who was first announced in this journal) as having undertaken the manufacture of menthol is so well established that none of the alarming consequences alluded to above need be feared.—ED. AM. DRUGG.]

Oil of Rose.—Schimmel & Co. an-

* From the Bericht von Schimmel & Co., Leipzig, September, 1884. Communicated by the agents of the house: Messrs. Fritzsche Brothers, of New York.

nounce that they have at last succeeded in inducing florists and owners of suitable localities, in the neighborhood of Dresden, to undertake the cultivation of roses on the large scale, and that they have already started the manufacture of pure oil of rose, having thus far obtained about 3 kilos. By a careful study of the kinds of roses best adapted for this industry, the firm expects to far excel the foreign oil in quality. So far, the price of the German oil is quite high, but is equivalent to its purity and superiority.

Oil of Origanum Creticum (*Oil of "Spanish Hops"*).—This has been so scarce that it could not be supplied to the trade, but only to pathological laboratories of a number of universities, which are regular customers for it. At present, there is a little more available than formerly.

Oil of Vetiver.—The preparation of this oil is a very disagreeable task, owing to the great dustiness of the vetiver roots. This dust cannot be removed without also removing the particles of bark containing the oil cells.

Cumarin.—The price of a kilo of tonka-beans is at present at least 15 marks ($3.60); this quantity contains not more than 15 gm. (½ oz.) of cumarin; and this quantity of *artificial* cumarin costs only 4.50 marks ($1.21). It is easy to understand that the artificial substance is gradually replacing the natural, both in perfumery and in the tobacco industry.

Commercial Balsam of Peru and the methods for ascertaining its purity.*

THE writer of the paper states that adulteration of the balsam has been more observed on the Continent than in Great Britain, and concludes with a report on twelve samples obtained from representative sources, only one of which was adulterated (with storax). The Pharmacopœial and other recognized tests are:—

1. *Preliminary tests* (Specific Gravity).—This is an important factor in the indication of impurity. Ten years ago the balsam had a specific gravity of 1.150 to 1.160, and now it is 1.137 to 1.145 according to the Ph. Ger., and 1.135 to 1.150 according to the U. S. P. This change is said to be due to a modification which the balsam undergoes in the course of its purification at the ports of shipment. The author recommended 1.137 to 1.150 as a standard; it being desirable to adopt a minimum which shall exclude balsams contaminated with storax, benzoin, colophony, copaiba, and fixed oils, all of which lower the density.

The Sulphuric Acid Test, of the U. S. P., was found to be very good for detecting fixed oil and copaiba. It was pointed out that Schlickum's recommendation to use hot water is very bad, because in all cases it prevents the resinous mass from hardening.

The Ammonia Test, of the Ph. Ger., designed by Dr. C. Grote was also found to be exceedingly good for the detection of colophony. Five drops shaken up with about a drachm of liquor ammoniæ (B. P.) gives a froth amounting to about twice as much as the liquid, and if there be a large percentage present, the solution gelatinizes in a day. Schlickum's modification of the test was condemned.

Flückiger's Lime Test.—This consists in rubbing up 10 drops of balsam with 0.4 Gm. (say 6 grains) of lime. If the balsam be pure, according to Flückiger, it should not harden, but remain soft and kneadable, whereas balsam containing storax, colophony, copaiba, or benzoin becomes quite hard and brittle. This the author denied, and gave details of experiments in proof of his statement. He had also tried Grote's modification of the test, which consists of adding merely a few drops of spirit to the balsam, and by this method he got very hard masses with all kinds of balsam, pure and adulterated; but balsam to which 10% of castor oil had been added remained permanently soft. It was, therefore, inferred that the hardening was due to the alcohol added. The storax- and copaiba-adulterated balsams communicate their distinctive odors to the lime paste.

2. *Qualitative Tests.* (The action of solvents as a means of detecting impurity and indicating quality.)—The odorous principle (cinnamein) was dissolved out by petroleum spirit, sp. gr. 710, boiling-point 65° C. If less than forty-one per cent of cinnamein was obtained, it was inferred that the specimen was not good; but only one gave less, viz., the one adulterated with storax. More than half of those examined contained above forty-five per cent, from which it would appear that our supply is of fine quality. It was pointed out that castor oil and copaiba increase the yield of cinnamein. Schlickum states that they do so by their own weight, but the author gave proof to show that they do this only to a limited extent. The P. G. requires that the petroleum spirit residue should not have the odor of turpentine, storax, or copaiba, and that it should not give a blue or greenish-blue coloration with nitric acid P. G. The test has been condemned by Grote, and the author has endeavored to show where it misleads. If the petroleum spirit solution be not filtered, the suspended particles of any kind of balsam give the green coloration, and nitric acid, P. G. is too weak to do what is expected; but the B. P. acid (sp. gr. 1.420) gives an intense blue with copaiba, and bright emerald green with colophony-adulterated balsams. Other adulterants, and even pure balsam, give colorations which are not, however, sufficiently distinctive to rank as tests. Castor oil is also detected in the petroleum-spirit residue by saponifying with weak alcoholic potash and acidifying with hydrochloric acid; oily globules, in addition to crystals of cinnamic acid, separating if there be oil present.

Regarding the carbon bisulphide test of the U. S. P., which states that three volumes of bisulphide should separate from one of the balsam not more than forty per cent of insoluble matter. This percentage is much too high, sixteen per cent at the most being sufficient, because an admixture of benzoin increases it, and a high percentage of insoluble matter is one of the best means of detecting that adulterant. It was shown that the amount of insoluble matter bears no relation to the amount of resin in the balsam.—*Chemist and Druggist.*

*Abstract of a paper by Peter MacEwan, read before the British Pharm. Conference.

The Manufacture of Iodide of Potassium.

MR. C. F. CAPAUN-KARLOWA is the author of a long paper in *Neueste Erfind. und Erfahr.*, in which he discusses the different available methods for preparing iodide of potassium. According to him, the most advantageous is that originally recommended by Duflos, which consists in allowing iodine to act upon zinc in presence of of water, precipitating the resulting iodide of zinc by means of carbonate of potassium, removing any remaining metal from the iodide of potassium solution by hydrosulphuric acid, filtering and crystallizing.

Although iodine and zinc are farther apart in the electro-chemical series than iodine and iron, yet their union takes place with less energy. As the zinc, when working this process on a large scale, must be used in a granulated condition, a large excess of it is necessary, in order to present enough surface to the iodine. The undissolved portion, of course, can be used in the next operation.

If 1 part each of iodine and granulated zinc, and 2 parts of water are brought together at the ordinary temperature, no reaction ensues. On gradually warming, a slow action is started, the liquid first acquires a yellowish color and gradually becomes dark-brown. After two or three hours, it again gradually becomes lighter colored, and finally as colorless as water. The liquid is now filtered and the remaining zinc washed with distilled water and put aside. The united liquids are heated to boiling and mixed with enough solution of carbonate of potassium until no more precipitate is produced.

The reaction takes place as follows:

$$\underset{\text{iodide zinc}}{5ZnI_2} + \underset{\text{carb. of potassium}}{5K_2CO_3} + \underset{\text{water}}{3H_2O} = \underset{\text{iodide potassium}}{10KI} + \underset{\text{basic carbonate of zinc}}{2ZnCO_3\,3(ZnOH_2O)} + \underset{\text{carbonic acid gas}}{3CO_2}$$

Since the escaping carbonic acid gas causes a good deal of effervescence, capacious vessels must be used for the operation, and in order that *all* the zinc be precipitated, an excess of carbonate of potassium must be used. To insure the complete precipitation of the zinc, the filtrate must be tested with sulphide of ammonium, and, if necessary, the liquid must be digested (warm) for some time with the carbonate of potassium added in excess.

The precipitate is washed with distilled water until the washings no longer affect mercuric chloride. [In practice it is not convenient to add all the wash water to the first liquid, to be concentrated together, as it would unnecessarily dilute the strong solution first obtained. It is preferable to use the dilute wash-waters in place of water in the next operation.—ED. AM. DR.] Since the precipitated carbonate of zinc is quite compact, the washing is easily performed.

The excess of carbonate of potassium still remaining in the liquid is now neutralized or nearly so with hydriodic acid, and hydrosulphuric acid gas then conducted through the liquid, in order to remove every trace of metal. Finally the liquid is filtered, if necessary, heated to drive off the excess of hydrosulphuric acid, and then evaporated [to the crystallizing point or] to dryness.

This method has the advantage of being simple and not causing any notable loss of iodine through violence of the reaction, nor need the operation be hastened, as the products are not affected by exposure to the air. The washing of the precipitated carbonate of zinc, however, must be continued for a considerable time, until all the iodide of potassium has been washed out of it.

The author lays special stress upon the necessity of adding a *considerable* excess of carbonate of potassium to insure the complete precipitation of the zinc.

Distinction between Rice-Meal and Buckwheat-Meal.

THE sample is made into paste with strong potash-lye, heated on the water-bath, and treated with hydrochloric acid. In case of rice, the paste is yellow, and, after treatment with acid, white. Buckwheat gives a dark-green paste which is turned red by hydrochloric acid.—*A. Lehn* in *Zeitschr. f. anal. Chem.*

The British Medical Association created a new section at its recent meeting at Belfast—that of Pharmacology and Therapeutics.

Japanese Cod-liver Oil.*

NORWEGIAN cod-liver oil is obtained from several varieties of the cod species, such as the common cod, *Gadus Morrhua*, the dorsch, *G. Callarias*, the ling, *G. Molva*, the coal fish, *G. Carbonarius*, the pollock, *G. Pollachius*, etc. Japanese cod-liver oil (at least that manufactured and exported by Cocking & Co.) is the product of the Japanese cod, *Gadus Brandtii*. It is a fish frequenting the shores of the Northern part of the main island of Japan (Nipon), and of the whole of the northern island of Yesso. It comes in immense shoals about the months of November, December, and January, and is caught by the fishermen with hooks and lines near the shore. The port of Otaru in Yesso is where this industry is conducted on the largest scale. Immediately upon the fish being caught, the livers are taken out, separated from the blood, veins, membrane, and other impurities, and thoroughly washed. The livers are carefully separated, and only the healthy, large and plump ones are retained for the extraction of the best qualities of oil. The oil, as it exists in the cells of the liver, is naturally of a very pale straw color and bland taste, the various shades of darker color than this, up to the dark brown seen in commerce, is only the effect of the artificial extraction of the oil by excessive heat, and the greater or lesser degree of putrefaction of the liver before the oil is extracted. The oil being contained in cells or glands, to get a large yield of oil, great heat has to be applied, or else the livers are allowed to become putrid so as to reduce the cellular tissue, and thus allow of the escape of the oil. The yield of this last process is large, but red and dark-brown in color and more or less rancid, and the attempt is sometimes made to improve its color by bleaching with chemicals, such as sulphuric acid, etc., which of course entirely destroys the delicate chemical constituents upon which the value of the oil depends. In the process adopted for the extraction of the Japanese cod-liver oil, the clean and fresh livers are merely reduced to a pulp, which is transferred to large, iron steam-jackets, enamelled inside, and the oil is extracted by steam at as low a temperature as possible, until no more can be drawn off without an increase of heat. This is then transferred to receivers, allowed to cool, and the solid fat frozen out. The climate of Yesso during the cod-fish season greatly facilitates the operations in producing a pure and naturally refined oil, as the temperature of the air is always from 10° to 15° below freezing. This not only keeps the livers in a fresh state, during the preliminary operations of cleaning and reduction to a pulp, but affords a natural and ready mean of separating the solid fats, which is therefore most effectually done, simply because it costs nothing. After separation of the solid fat, the oil is shipped to Yokohama and there further purified by steam washing, in order to remove volatile acids, such as acetic, butyric, caprylic, etc., which, if allowed to remain, cause irritation of the throat and stomach.

Cod-liver oil, as an organic body, differs essentially from all other fixed oils. It is not determined among medical men and chemists as to what particular constituents it owes its remarkable properties, but the researches of many tend to the conclusion that this oil owes its action to its olein—of which the best pale oil contains about 80 per cent or, what is more probable, to the biliary principles contained in the olein. There are several inorganic elements found in slight quantities in cod-liver oil, two of which have especially been laid stress upon, viz., iodine and phosphorus, but all varieties of the oil contain such infinitesimal quantities, that one cannot recognize in either of these elements the cause of the tonic and reconstituting action of cod-liver oil. The active principle seems to reside almost wholly in the particular fatty substance itself.

Japanese cod-liver oil has been known in Europe among the trade for several years, and many shipments have been forwarded during that time. It has usually (or always) gone into consumption as "Norwegian cod-liver oil," to make up the deficiency in the supply of the latter. (The *Chem. and Drug.* of May 15th, 1883, remarked: "Japan (cod-liver oil) in cases still meets with inquiry, principally for mixing; if more care is taken next season in preparing this oil, we think it will become a great rival to the Norway oil.")

A large cod-fishing industry has for a long time been carried on in the northern portion of Japan, more particularly in that part of the empire known as Yesso, and European experts often looked forward to this field as an important source of future supply of cod-liver oil. But, up to within three years ago, the fishermen actually threw the livers away, as the government of Japan made a close monopoly of the cod-fishery, and not only allowed the valuable livers and oil to go to waste, but even prevented private enterprise from availing itself of the opportunity. Since, however, the colonization department of the Japanese government, known as the *kaitakushi*, was abolished, and the island of Yesso made into a prefecture, this source of wealth can now made available. And in the face of the immense falling off in the supplies from Norway, this has occurred at a most opportune time.

A chemical examination made Mr. H. Yoshida, chief chemist of the Japanese Geological Survey Department, showed, among other properties and constituents (already well known from previous analytical reports), the presence of about 1.5% of *gaduin* and about 0.98% of salts which were left behind on ignition. The peculiar principle gaduin, which exists in all cod-liver oils, was separated by De Jongh's method. The oil was saponified with soda, the resulting soap decomposed with solution of neutral acetate of lead, and the compounds thus formed treated with ether. By so doing, the gaduin and oleate of lead are dissolved and may be filtered off from the insoluble margarate of lead. After evaporating the ethereal solution, reconverting the oleate of lead into a soda salt, finally dissolving the residue in hot alcohol of sp. gr. 0.875, and cooling the solution to 0° C. (32° F.). the gaduin is separated by the aid of sulphuric acid.

Thus prepared and dried, gaduin is an inodorous, tasteless, dark-colored, friable substance. It dissolves with red color in sulphuric acid, from which it can be reprecipitated either by water or by an alkali.*

* Abstracted from statistics and other papers kindly supplied by COCKING & Co., of Yokohama, Japan.

* Cocking & Co. quote cod-liver oil, in 35 lb. tins, at 14 cents per lb. free on board at Yokohama. By the cask or for larger quantities, a proportionate reduction would no doubt be made.

On American Sulphuric Acid.

UP to a few years ago, all the sulphuric acid produced in the United States was made from Sicilian sulphur. The attempts which were occasionally made to utilize the domestic native sulphides (pyrites) were in no case permanently successful, since the manufacturers did not use either the proper methods or apparatus. Prof. G. Lunge had drawn attention to this fact already in the German edition of his Handbuch der Soda-Industrie, and in the subsequent English edition he stated that it was only a question of time when pyrites would take the place of Sicilian sulphur in the United States.

This prediction has been already partly fulfilled, and it is said to be chiefly due to the detailed description of the most practical and economical methods used by England and other nations for working pyrites, which Prof. Lunge described at length in his elaborate work. In June, 1882, only two sulphuric acid works used pyrites, but in March, 1884, the number had already increased to eighteen.

With a desire to correct some erroneous statement made by him in reference to a misunderstood or misconstructed circular which had reached him from the U. S., Prof. Lunge takes the opportunity of announcing that many American pyrites ores (as, for instance, that of the Davis Company of Charlemont, Mass.) are absolutely *free from arsenic*, and that, therefore, an acid prepared from *such* pyrites, is able to compete even more favorably with sulphur-made acid, than is the case in Europe where pyrites is almost always contaminated with arsenic.

Another pyrites free from arsenic is that offered by the Sulphur Mines Company, of Virginia. — *Dingler's Journ.*

Action of Arsenious Acid upon Glycerin.

A PAPER by Herbert Jackson, in the *Chemical News*, calls attention to the reaction which occurs when glycerin is saturated with arsenious acid. Several text-books mention the fact that glycerin is its best solvent, but the reason for this seems never to have been pointed out. Mr. Jackson observed that a considerable quantity of water was given off when anhydrous glycerin was treated with arsenious acid, and proceeded to determine the amount of water so evolved when a weighed quantity of glycerin was treated with an excess of the arsenious acid. 1.5 parts of the acid and 1 part of glycerin were used, and the mean of several experiments showed that an amount of arsenious acid, equal at least in weight to the glycerin, was necessary.

Experiments to determine the maximum quantity of the acid which could be made to combine, consisted in inclosing different proportions of the substances in sealed, stout glass tubes, and heating them for two hours at 250° C. In all cases where the arsenious acid was in excess of the proportion above mentioned, some of it crystallized and some blackening of the contents of the tube occurred, owing to the reduction of arsenic.

Further experiments showed that 14.45 grammes of glycerin require for saturation 15.98 grammes of arsenious acid and give off 4.57 grammes of water. In other words, 184 parts (2 equivalents) of glycerin require 198 parts (1 equivalent) of the acid, and evolve 54 parts (3 equivalents) of water.

The experiments further showed that arsenious acid and glycerin react to form normal glyceryl arsenite, or arsenious ether of glycerin, a compound which is a colorless, transparent, vitreous solid; very deliquescent and easily decomposed by water into glycerin and arsenious acid. It is entirely soluble in absolute alcohol, and is left unchanged when the alcohol is driven off by evaporation. It is also freely soluble in glycerin, as would be expected. It becomes soft at 100° C., and can be poured easily when the temperature reaches 200° C. When quite dry, it appears to be stable at the boiling point of glycerin (290° C.) but is decomposed above that temperature.

Method for the Assay of Indigo.*

THE determination of indigo blue, or indigotin, in indigo, presents various difficulties. The processes in use are long and subject to considerable error. The methods which depend upon the reduction and subsequent measured oxidation of indigo require the elimination, previously, of all other reducible bodies, to insure accuracy—an operation both long and tedious. The method by formation of sulphindigotine and its estimation by a standardized permanganate solution always gives too high results by reason of the presence of other oxidizable bodies.

For several years the author has used a method by sublimation which has been uniformly satisfactory. Indigo sublimes readily, and, by a careful regulation of temperature, can be separated from the components of indigo, indigo brown, indigo red, mucilaginous matter, etc.

The operation is best effected in a shallow platinum tray. Those in use are 7 Cm. long, 2 Cm. wide, 3 to 4 Mm. deep. Into such a tray is weighed about 0.25 Gm. of finely powdered indigo which has been dried at 100° C. The weighing should be rapid to avoid absorption of moisture, and it is best not to exceed this amount greatly for a tray of the size noted, in order that the layer of indigo may be thin.

Spread the weighed powder evenly over the tray by tapping it with the finger; this can be done easily if the bottom of the tray is quite flat, with no rounding toward the sides. Sub lime on an iron plate, at first raising the heat gradually to avoid burning.

When the surface of the indigo is covered over with a shining layer of crystals, turn down upon the plate a piece of Russia iron, bent into the form of a flat arch, the highest point of which is about one Cm. above the plate, and a little longer than the tray. Lower the heat at the same time that the arch is put on, as the temperature rises rapidly.

The purple vapors of indigotin are now given off, a portion condensing upon the under sides of the arch. Raise the heat slowly, and enough to maintain a constant sublimation of indigotin. By raising the arch the progress of the work is seen. For a five per cent indigo the time required is thirty to forty minutes; but soft Java indigo must be sublimed with more caution, and sometimes requires two hours. The last crystals of indigotin are easily seen upon the dark-colored surface of the residue. When all have disappeared, remove the tray, cool in a desiccator and weigh. The loss in weight is indigotin. Observe that the heat be no greater than is required to sublime the indigo blue; and that no yellowish vapors appear which would indicate the destruction of the residue, leaving only ash.

If the bottom of the tray is flat, and everywhere touches the plate, the sublimation goes on regularly, except in case of very rich indigos, already mentioned, when care must be exercised to prevent burning.

Results by this method are constant within one-quarter of one per cent, but the author has frequently made re-determinations with variations of only half that error.

A little practice enables one to leave the sublimation with only occasional attention, and three or four determinations may be carried on at once under the same arched cover.

For commercial and industrial purposes, this method appears to have decided advantages. Its rapidity is in great contrast to the other methods which admit of perhaps two determinations in a day, while in point of accuracy it is not wanting.

* From a paper by Chas. Tennant Lee, in the *Journ. of the Amer. Chem. Soc.*, vi., 185.

Tests for Identity and Purity of Cod-Liver Oil.

ACCORDING to A. Kremal, the cod-liver oil supplied to the European markets is frequently spurious, being either a mixture of the genuine oil with seal or coalfish oil, or else simply one of the latter oils, alone or mixed. Of late years, Japan has also furnished the market with so-called cod-liver oil, the quantity of this in stock in London, in April, 1884, being 500 cases, each containing two tins of 40 to 80 pounds each, and 20 casks each holding 25 gallons.*

In order to find, if possible, a test which could be used to ascertain the identity and purity of genuine cod-liver oil, Mr. Kremel made extensive experiments with oils of different but known origin. He determined their specific gravity, percentage of liquid and of solid fatty acids, melting points of the solid acid, percentage of free fatty acid, amount of potash necessary for saponification, and amount of iodine solution necessary for iodizing the oil.

While some of the results thus obtained appear to be available, in certain particular cases, to distinguish the pure from spurious oils, yet most of the values are so nearly similar that no general method can be based thereon.

At the conclusion of his paper, however, the author states that a very good process for distinguishing the pure from the spurious oils may be based upon their behavior towards fuming nitric acid, spec. gr. 1.500. (Compare note on Cod-Liver Oil on page 216 of this number.)

If ten to fifteen drops of the respective oils be poured on watch-glasses, and two or three drops of fuming nitric acid are slowly poured in from the side, the several oils exhibit the following appearance.

1. Genuine cod-liver oil (from *Gadus Morrhua*) turns *red* at the point of contact; when afterwards stirred with a glass-rod, it become fiery rose-red, soon passing over into pure lemon-yellow.

2. Coalfish oil (from *Gadus Carbonarius* turns intensely *blue* at the point of contact; when stirred, it turns brown and remains so for two or three hours, when it finally passes likewise into a more or less pure yellow.

3. Japanese cod-liver oil behaves like the preceding, except that red streaks are sometimes observed along with the blue ones, on the addition of nitric acid.

All three varieties likewise yield the well-known color reaction for biliary acids (with sulphuric acid.) Two different kinds of cod-liver oil appear to be exported from Japan, since Gehe & Co. report having met with one which did not give this color reaction.

4. Seal oil, treated as above stated, at first shows no change of color, and becomes brown only after some time. As this oil is not a *liver* oil, it of course does not give the reaction for biliary acids.

According to the author, this reaction with fuming nitric acid is so intense and characteristic that admixtures of them (of not less than about twenty-five per cent) to genuine oil may be readily detected. After *Pharm. Post*, 1884, Nos. 30–31.

Furniture Polish.

ONE of our correspondents sends us the following formula, which, he says, is easily prepared and works well:

Alcohol	4 oz.
Turpentine	2 "
Damar Varnish	1 "
Linseed Oil (raw)	8 "
Acetic Acid	1 "

A Greek Pharmaceutical Journal.—Prof. X. Landerer announces the appearance of the first number of a pharmaceutical journal published by the pharmaceutical society of Athens.

* On Japanese cod-liver oil, see preceding page.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,365.—**Rapid Disinfection** (Dr. A. F. M.).

When it is required to rapidly disinfect sick-rooms in private houses or in hospitals, it is usually found inconvenient to generate chlorine gas from chloride of sodium, binoxide of manganese, and sulphuric acid, as detailed in one of our previous numbers. If chlorine is to be used, it is best to generate it by means of chlorate of potassium and hydrochloric acid.

A very simple and equally effective way is to use *bromine*, and as our correspondent specially inquires about this agent, we will give him the following practical hints derived from our own experience. Supposing a small room, say a water-closet, is to be disinfected, this should first be thoroughly flushed, the floors well wetted down, also the walls dampened if possible, and a plate containing sand be placed at as high an elevation in the room as possible. All outlets excepting the door having been hermetically closed or pasted up, some person standing upon a chair or other convenient place, quickly opens a bottle of bromine and pours its contents upon the sand, after which he quickly retires through the door, which should be kept *open* until he is outside. The door is then to be also hermetically closed. For a space of, say 600 cubic feet, about one ounce of bromine will suffice. If the bottle of bromine cannot be opened, owing to the stopper being permanently caught in the neck, the bottle is broken over the sand by means of a hammer.

If large rooms or hospital wards are to be thus disinfected, it is advisable to have a series of plates distributed in different portions of the room, at proper elevation. Some systematic plan should also be followed in emptying the bottles, in order to avoid risk to the persons performing the manipulation. Each plate and bottle of bromine should be in charge of a separate person, previously drilled or instructed how to act. Every outlet having been closed except the door, which latter should be *held open* by a special person, who should be provided with a bottle of ammonia, in case of some person inhaling too much of the bromine by the premature breaking of a bottle or too rapid diffusion of the gas—the charging of the plates should take place in a regular rotation. Previous to the bottles being taken into the room, the stopper of each should be tried, and either only such should be used, as have easily removable stoppers, or the persons to whom bottles with refractory stoppers are given should be provided with a hammer or other iron tool to break them. Every person being in his place, at a given signal the one farthest from the door empties or breaks his bottle on the sand and immediately retires. In rapid succession the others at a given signal perform their share of the task, and as soon as all have left the room the door is closed and securely pasted up. If some such precautions are used, accidents can scarcely ever occur. The failure to observe a fixed plan, however, has, on several occasions,

almost resulted in very serious consequences. For instance, on one occasion within our recollection, the persons near the exit of the room prematurely emptied their bottles, and when the persons stationed at the more distant places were compelled to pass through the volume of vapor already evolved, several of them were seriously affected by the inhalation of the bromine.

Bromine disinfection is at least as effective as that by means of chlorine. It is also economical, particularly when the few preparations it requires are taken into consideration. To be effective, however, it is necessary to have plenty of water-vapor in the room, for without this neither chlorine nor bromine will be able to destroy or decompose noxious germs or gases.

No. 1,366.—**Rat Poisons.**

The most effectual is phosphorus. Rats are attracted by its odor as well as by its luminousness in the dark. After they have taken it, they are harassed by thirst so that they will leave the premises in order to seek water and die.

Phosphorus Paste.

In a warm porcelain mortar about 15 parts of warm water and enough flowers of sulphur are triturated with four parts of phosphorus, until a butter-like mass is formed. This is then mixed with fifty-five parts of wheat-flour and 15 parts of fat (best from roasted pork) and enough cold water to produce a soft uniform paste. Finally 2 parts of powdered anise-seed (or $\frac{1}{4}$ part of oil of anise) are incorporated with it, and the mass transferred to stone-pots impervious to fat, which should be small enough to have their contents consumed in a short time.

The paste is applied, by means of a stick of wood, to buttered bread, pieces of sausage, or put inside of little fishes, which are laid about in the evening.

Many other good methods for destroying rats have been recommended, among which the following perhaps deserve mention:

1. Nux Vomica, ground... 1 part.
   Beef-tallow..... 3 parts.
2. Arsenious acid..... 1 part.
   Flour.....10 parts.
   Sugar.....10 "
   Prussian blue..... 1 part.

[N. B .Whenever a poison for rats or mice would naturally have a white or other apparently innocent looking color, *always* add some striking coloring matter, of a tint likely to repel any one from tasting it.]

3. Strychnine..... 1 part.
   Fresh or smoked Sausage.....300 parts.
4. Strychnine..... 1 part.
   Wheat Flour..... 50 parts.
   Sugar..... 20 "
   Prussian Blue..... 1 part.

Butter enough to make a pill-mass.

No. 1,367.—**Prescription Difficulty** (W. U. Z.).

This correspondent asks how the following prescription can be prepared so that the resulting mixture will be clear. He says he has tried every conceivable way to combine them, and failed to get a clear mixture. He also asks what is the effect of the addition of dilute phosphoric acid to a solution of pyrophosphate of iron.

℞ Strychninæ Sulph..... gr. ¼
Quininæ Sulph.,
Ferri Pyrophosph. .....āā ʒ i.
Ac. Hydrobromici,
Ac. Phosphorici dil.....āā ℥ ʒ i.
Aquæ..... ℥ ij.

In the first place, we presume it was intended to write "Acidi Hydrobromici diluti," inasmuch as the kind of acid wanted is not defined by the term used in the prescription. Next, we have to state that the whole trouble is the presence of pyrophosphate of iron. If we remember that the true pyrophosphate of iron is a salt insoluble in water and soluble only in certain acids, for instance pyro- and metaphosphoric acid, but insoluble or nearly so in certain other acids, for instance, in the orthophosphoric or officinal phosphoric acid, we will soon have a clue to the difficulty. The insoluble pyrophosphate of iron is converted into a soluble salt by means of an alkaline citrate, and in this form appears in green scales which are soluble in water. As long as there is not added an acid which is strong enough to decompose the alkaline citrate, the latter salt will remain intact and therefore keep the otherwise insoluble iron salt in solution. But when the alkaline citrate itself is decomposed, it ceases to exert a dissolving effect upon the iron salt. If only enough of the disturbing acid has been added to unite with a portion or the whole of the alkali (without being in excess), the citric acid will be set free, and this, alone, exerts but a feeble (if any) dissolving effect upon the pyrophosphate; hence the latter separates. If the disturbing acid has been added in excess, and this acid is one of those which do not at all, or but slightly, dissolve the pyrophosphate, the precipitate will appear or remain likewise. But if the disturbing acid can dissolve the iron salt—as, for instance, is the case with metaphosphoric acid—then a clear solution will result.

Diluted hydrobromic acid is not a good solvent for pyrophosphate of iron. The strong acid, however, dissolves it, producing a red solution of intense acidity.

If the above prescription is put up with the strong hydrobromic acid, say Squibb's 34%—in this way that the quinine and strychnine are dissolved in the hydrobromic acid, then the pyrophosphate in about 1 oz. of hot water, and the two solutions mixed, a copious whitish precipitate will appear in the midst of a blood-red liquid, and by shaking a clear mixture will result. On now adding *meta*phosphoric acid (*not* the officinal acid), the blood-red color will disappear and the liquid assume a yellowish-green tint, but it will rapidly lose its transparency. Had the officinal phosphoric acid been taken, the effect would have been still worse. The metaphosphoric acid solution should be kept in every prescription department; it is prepared by dissolving *glacial* phosphoric acid in water. Since the latter is never pure, but generally contains more or less phosphate of sodium, the resulting acid is never of uniform strength. It should be made by dissolving 1 av. oz. of the acid in 11 fl. oz. of water. As the solution is only used in mixtures containing pyrophosphate of iron, the deviation from the exact strength of the officinal acid is unimportant.

To recapitulate: The prescription above given is clearly incompatible; with diluted hydrobromic acid (which was probably intended) and the most favorable phosphoric acid it cannot produce a clear mixture. And with the strong hydrobromic acid it does not do so either, while the mixture resulting in this case is, besides, excessively acid. The remedy is to request the prescriber to leave out the hydrobromic acid.

No. 1,368.—**Defiance Glue or Paste** (N. N.).

Some years ago, a paste was offered in the market under the above name by an individual peddling about the city, which had a name given to it somewhat like the above, but the exact title of which we have forgotten. On examination it proved to be nothing else but the well-known combination between chromic salts and gelatin. It was sold in two little pots, the contents of one were to be pasted on one of the articles and the contents of the other on the other; the two articles were then to be put together and on exposure to light, the glue would become insoluble. It was once suggested that postage stamps should be fastened to envelopes in this matter; the difficulty only was to find some way of applying the compound to the stamps and keep it from becoming insoluble until they had to be actually used. And this difficulty has never been overcome.

No. 1,369.—**To render parchment transparent** (M.)

It is recommended that the parchment be soaked in a strong solution of wood ashes, we presume a solution of carbonate of potassium would answer equally well, if not better. It should be frequently taken out and squeezed until it is found to have become transparent, after which it is to be stretched on a frame and dried. Subsequently it can be much improved, it is said, by giving it on both sides a coat of clear mastic varnish made with turpentine.

No. 1,370.—**Havana Flavoring** (J. A. E.).

It is useless to ask us questions of this kind, which could only be answered by the members of the firm. It is not likely that they would divulge their secret, the chief capital they work with, and it is a hopeless task to attempt to discover it by analysis. The only way our subscriber is likely to get at least near the solution, is by trying and compounding until he has obtained what he wants.

No. 1,371.—**Artificial Wines** (Ohio).

The poor wine crops in Europe during the last ten or fifteen years stimulated research for some methods of producing artificial wine or at least a compound into which some of the waste-products of the regular wine manufacture could be made to enter, and it was not long when practical processes were discovered.

Artificial wine is here understood to mean grape-skin wine, that is, such a wine as is produced by allowing a solution of sugar to ferment over the skins of grapes. Its preparation and sale is, of course, under ordinary circumstances, subject to criticism, and there is no denying the fact that it has and is very frequently sold for genuine wine. Nevertheless, in some years of misgrowth, the process served to supply large districts with the accustomed and indispensable beverage, and from a *sanitary* point of view, there is probably no objection to be made to it. We give the outline of the process merely as a piece of professional in formation.

After the juice (must) has been expressed from the grapes, the remaining skins are transferred into suitable casks, and upon them is poured a liquid containing sugar and tartaric acid. The sugar is dissolved in definite quantities of water, so as to be able to know the percentage of alcohol beforehand:

Sugar added 100 liters of water.	Spec. grav. of mixture.	Yields per cent of alcohol.
2.3 kilos.	1010	1.56
4.5 "	1020	3.05
6.7 "	1030	4.54
9. "	1040	6.09
11.3 "	1050	7.65
13.5 "	1060	9.14
15.7 "	1070	10.63
17.3 "	1080	12.05

That is, is in order to prepare a wine containing 9% of alcohol, there is prepared a cane-sugar syrup having the specific gravity 1060 and containing 13⅓ kilos in 100 liters of water. This solution is then mixed with 400 Gm. of tartaric acid, and about 50 Gm. of powdered tannic acid, and then poured on a suitable quantity of the grape-skins in the casks, where it is allowed to ferment, drawn off when it shows 0 by the densimeter, and transferred to a new cask. Here it is allowed to settle or is clarified, after which it constitutes a more or less agreeable

and drinkable wine. Most of this is, however, not consumed as still wine, but is converted into artificial (or rather, according to the labels, into "superior genuine") champagne.

No. 1,372.—**Dispensing Difficulty** (G. H. Q.).

This correspondent inquires how the following mixture may be prepared without a separation of the resinous matter of the tincture of eucalyptus:

℞ Sodii Iodidi	ʒ ij.
Sodii Bromidi	ʒ iij.
Tinct. Eucalypti	f ʒ iij.
Syrupi	f ℥ i.
Aquæ, q. s. ad	f ℥ iv.

The above cannot be made into a homogeneous mixture without the intervention of some substance which will keep the resin of the tincture in suspension. Of course, the best agent for this purpose is gum arabic, of which about 1 drachm may be used to emulsionize the tincture. The latter is first triturated with the powdered gum arabic, and gradually about an equal volume of water added under continuous trituration. The salts having been dissolved in about 1 fl. oz. of water and the syrup, this solution is gradually added to the emulsion under stirring, and the volume then made up to 4 fl. oz. by water.

In the case of tincture of eucalyptus, it is indeed possible to produce an apparently homogeneous mixture by merely mixing the above, but it will not be permanent for many hours. By the use of acacia it may be rendered permanent for at least several days, and even longer. In the case of certain other resinous tinctures, as tincture of cannabis indica for instance, acacia *must* be used if a homogeneous mixture is to be produced.

No. 3,137.—**Migraine Powder** (Ana). Hager quotes the following:

	Gm.	Grs.
Quinidinæ Sulph.	1.5	24
Caffeinæ	1.0	16
Acidi Tartarici	1.0	16
Morphinæ	0.05	¾
Sacchari	10	160

Mix and divide into *five* powders.

One of these may be taken night and morning. It is said to act very promptly in migraine. If, necessary, the proportion of morphine may be increased somewhat without interfering with the action of the mixture otherwise. Feeble persons may divide a powder into two parts to be taken in the course of one hour. The best vehicle for administering this powder is black coffee.

No. 1,374.—**Iodoferrated Cod-Liver Oil** (M. V.).

A formula for such a preparation has been given by van Valkenburg:

Cod-Liver Oil	394 parts.
Iodine	5 "
Iron, reduced	10 "

Mix the iodine with the cod-liver oil in a bottle which should be nearly filled with the mixture, and set the bottle aside, occasionally agitating it, until the iodine is dissolved. Then add the iron, close the bottle with an accurately fitting glass-stopper and shake it frequently during about four hours, until the liquid has acquired a purplish-violet tint. Next set it aside for a day and a half, and again shake it for an hour. Repeat this operation once more, after another day's interval. Finally set the bottle aside and allow to deposit.

When the oil is wanted, pour off a sufficient quantity, and immediately transfer the remaining liquid to a bottle (which should be completely filled with it) for future use. The bottle must always be kept perfectly closed.

No. 1,375.—**Cologne** (H. F. E., Watertown, Wis.).

It is not known what the composition of Hoyt's German Cologne is, and thus far attempts to imitate it have not been remarkably successful. A formula proposed by D. A. Frank consists of

Oil of Bergamot,	
" " Lemon	āā ½ oz.
" " Canada Snake-root	40 min.
" " Cassia,	
" " Lavender (English),	
" " Clove	āā 20 min.
" " Rose Geranium	½ oz.
" " Sandalwood	10 min.
" " Rose	30 "
" " Neroli	5 "
Essence of Jasmin	2 oz.
Tincture of Orris (1 oz. to Oi.)	8 oz.
Compound Tr. of Ambergris	1 oz.
Cologne Spirit	5 pts.
Water, to make	1 gal.

Formulas asked for:

Williams' Indian Pile Ointment.

East India Opium Cure, manufactured in Elizabeth, N. J.

BIBLIOGRAPHY.

NUEVA FARMACOPEA MEXICANA de la Sociedad Farmaceutica de México. Segunda edicion, corregida, aumentada y arreglada por los profesores ALFONSO HERRERA, FRANCISCO GONZALEZ, JOSE M. LASO DE LA VEGA, SEVERIANO PEZEZ Y DR. MANUEL S. SORIANO, miembres de la Comision permanente de Farmacopea de la referida Sociedad, 8vo. México, 1884.

WE have been favored by the Society with an early copy of this interesting and important work, which, while it is not issued under the direct and official authority of government, yet is universally recognized throughout Mexico as the standard authority. The first edition was conceded to be a very thorough and superior work, and the present fully deserves an equal encomium. Its plan of construction and scope differs from most other pharmacopœias in this, that it approaches rather the nature of a dispensatory than that of a pharmacopœia. Yet this is no disadvantage, particularly for a country of such vast extent as Mexico. The text of the present work is printed in solid brevier, two columns on a page, with very clear and handsome type upon excellent, heavy paper.

The work is copyrighted, neither reprint nor translation being permitted. We presume, however, that such quotations or translations of separate articles or paragraphs as may be needed for purposes of scientific discussions, are not included in this restriction.

The contents of the work are as follows:

Pp. i-xxxi, Title. — Copyright. — List of abbreviations.—Report of the Pharmacopœia Commission to the Mexican Pharm. Society, at the presentation of the first edition (1874).—Report of do. to do. for this edition.

Part I.—Preliminary notices; tables of weights and measures; of melting points; of freezing mixtures; thermometrical and areometric tables; of densities of acids; of elements and their oxides, with formulæ and at. weights.

Part II. (pp. 17 to 318) contains:

Pp. 1-110.—Natural products from the vegetable, animal, or mineral kingdom. These and the following divisions are alphabetically arranged, according to their vulgar names (see specimen elsewhere). Then follows the title "Pharmacopœia proper" with the following divisions:

Part I., pp. 111-222. Chemical products.

Part II., pp. 223-318. Pharmaceutical preparations. The subdivision into 8 groups adopted in the first edition has been abandoned in this second, and all articles are in alphabetical order.

Then follows a supplement, pp. 319-321, with a short list of corrections and additions; and finally an appendix, p. 321.

A copious set of indexes is appended, namely, pp. 324-394.

1. General Spanish Index.
2. General French Index.
3. General English Index.
4. General index of words derived from the Aztec, Maya, Mexican, Otomi, Quidié, Tarasco, Totonaco, and Zapoteco idioms.
5. General Latin Index.
6. Index of authors mentioned in the work.

Pp. 395-399. List of Errata.

The work concludes with the following "*Notice*: With the view of keeping our readers abreast of the progress of pharmacy, appendices to this second edition of the New Mexican Pharmacopœia will be published at suitable periods."

INDISCHE PHARMAKOGNOSIE. Von F. A. FLUECKIGER. (Extract from *Archiv d. Pharmacie*, vol. 22, 7.)

THIS paper gives a concise but very complete history of the accessible literature treating of the materia medica of East Indies, from the earliest times to the present day, and concludes with a somewhat detailed review of Dymock's important work, "The Materia Medica of Western India," from which a subsequent edition of the Pharmacographia will be able to cull many interesting details.

Barth (Max). Die Weinanalyse. 8vo, Hamburg. m. 1.20.

Borgman (Eug.). Anleitung zu chem. Analyse des Weins. Mit Vor wort von Fresenius. 8vo, Wiesbaden. m. 3.

Oswald (Wilh.). Lehrbuch der allgemeinen Chemie. 8vo, Leipzig, vol. I. m. 20.

The most complete modern textbook on *general* chemistry, one of the most elaborate chapters of which is that on the nature and properties of *solutions*.

Steinmeyer (H.). Ueber Desinfectionslehre und ihre Anwendung auf die Praxis. 8vo, Braunschweig. m. 0.75

Boettner (Joh.). Die Obstweinbereitung. 2 ed. 8vo, Oranienberg. m. 1.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

Condition Powder. 302,761. — W. George Moore, Lebanon, Ohio. Consists of elecampane root, flaxseed, juniper berries, fenugreek, poplar bark, rosin, mustard, charcoal, licorice root, sulphate of iron, ginger root, sulphate of soda, salt, carbonate of soda, gentian root, black sulphate of antimony, nitrate of potash, coriander seed, valerian root, blood root, lobelia, mandrake root, and alum.

Capsule Filler. 302,777.—Frank J. Reinhold, Detroit, Mich., assignor to Frederick A. Hubel, same place.

Rectal Speculum. 302,846.—Luther Judson Ingersoll, Denver, Col.

Acid-Feeder for Soda-Water Apparatus. 302,850.—Thos. Kendall, San Francisco, Cal.

Salve. 302,875.—Helen C. Wilber, Fayette, Mich. Composed of equal parts of beeswax, balsam fir, mutton tallow, and castile soap, melted together and mixed with pine tar to

the amount of one-half of the entire amount of the other ingredients.

Compressible Piston. 302,921.—Geo. W. Lutz, Indianopolis, Ind. A compressible piston for syringes, wherein the plunger is formed of two elastic cups, mounted on the piston-rod, with their open ends towards each other, and adapted to be compressed by the shortening of the rod, so as to enlarge their diameter.

Inhaler. 302,949. — Robert Skem, Louisville, Ky. An inhaler for medicated vapors, consisting essentially of a shield, or shell-shaped body made of some rigid material, and having a flexible curtain or outer flexible flange, an exterior saliva-cup or liquid-receptacle communicating with the interior of the inhaler-chamber, and provided with inhaling and exhaling valves and with an attachable and detachable cup or receptacle for the liquid to be vaporized.

Cleansing Compound. 302,970. — John B. Ziebach, Pottsville, Pa. Consists of deodorized gasoline, sulphuric ether, alcohol, egg, oil of citronella, and oil of lavender.

Remedy for Hog-Cholera. 302,986.—Robert H. Coons, Marion Co., Mo. Consists of hyposulphite of soda, bicarbonate of soda, sulphate of iron, ginger, mandrake, lime, and Cayenne pepper.

Medical Compound. 302,995.—Albert W. Fuller, Findlay, Ohio. Consists of oil of wintergreen, camphor, sulphuric ether, oil of sassafras, oil of cinnamon, tincture of opium, chloroform, and alcohol.

Machine for Mixing Liquids. 303,080.—Oscar A. Weissenborn, Jersey City, N. J.

Corkscrew. 303,400.—William Redlich, Chicago, Ill.

Method of Hardening or Improving Resins of all kinds. 303,436.—Albert Kissel, Frankfort-on-the-Main, Germany, assignor to C. Zimmer, same place. The conversions of the acids contained in balsams, resins, and their products and compounds or by-products, or in mixtures of resins with other substances, by means of lime or other alkaline earths, into their respective salts.

Box for Holding Dry Powders. 303,582.—Wm. R. Miller, Baltimore, Md. A removable lid combined with a fixed lid underneath the removable one, having an aperture therein, a cover to fit within the said aperture, and a seal fastened over the said cover.

Medicinal Compound. 303,603. — Peter Harberle, Brooklyn, Mo. Compound of balsam of fir, glycerin, balsam of Peru, calamus root, juniper berries, blossoms of yarrow, and alcohol.

Apparatus for Distilling Chloride of Zinc. 303,736.—Augustus Jamieson, Chicago, Ill., assignor to himself and Samuel I. Russell, same place.

Physician's Buggy-Case. 303,958.—Jas. B. Vaughn, St. Louis, Mo., assignor to A. A. Millier, same place. In a physician's buggy case, the combination of the two receptacles, the leather or like cover, secured to and extending over both receptacles, and having a small flexible portion, to form a hinge between them, and the handle, secured to said flexible portion.

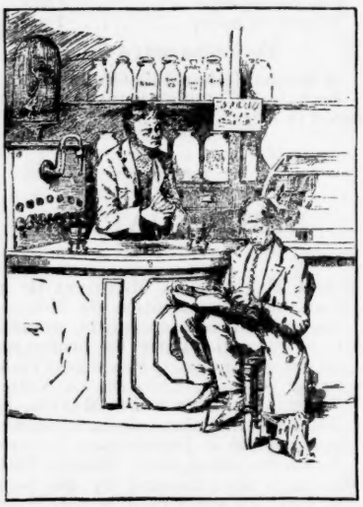
Method of obtaining Carbonate of Magnesia. 303,962.—Adolph Wünsche, Hamburg, Germany.

Pessary. 304,006.—Charley E. Kenyon, Chicago, Ill. Assignor to Jason T. Bartlett and Edward E. Butman, both of Boston, Mass.

Manufacture of Alkaline Salts. 304,044.—Sidney Gilchrist and Thomas, London, England.

Can-filling Machine. 304,063. — Volmy Baker, Portland, Me.

Corkscrew. 304,118. — Joseph G. Mooney, Erie, Pa.



"ANYTHING *besides* the directory to-day, sir?"

Brush for Mucilage Bottles. 304,134.—James C. Rosnecht, New York, N. Y.

Apparatus for filling Bottles. 304,219.—John B. Metzger, Williamsport, Pa.

Process of Obtaining Ammonia from Ammonium Sulphate. 304,260. — Eustace Carey, Holbrook Gaskell, Jr., and Ferdinand Hurter, County of Lancaster, Eng.

Corkscrew. 304,299.—William Crabb, Newark, N. J.

Apparatus for Recovering Copperas. 304,333.—Jeremiah Lyons, Pittsburg, Pa.

Composition for Preserving Meats. 304,360.—John Ross, Rocky Hill Station, Ky. Consists of chromic acid, nitrate of potassium, and water.

Kettle or Still. 304,405. — William Biedermann, Newark, N. J.

Clinical Thermometer. 304,896.—John Barry, New York, N. Y. The thermometer-tube having a flat back, a face semicircular, or nearly so, containing the graduations, the mercury-tube nearly equidistant from the front and back, and the white glass behind the mercury.

Manufacture of Fly-Paper. 305,118.—Otto Thum, Grand Rapids, Mich.

Box for Cleansing-Powders. 305,171.—Isaac H. Garson, Rochester, N. Y.

Corkscrew. 305,258.—Martin F. Williams, Bastrop, La.

Antiseptic Compound. 305,423.—Samuel Cabot, Jr., Boston, Mass. Consists of resin dissolved in a solution of an alkaline sulphide, holding in solution crude maphthalin.

Process for the Manufacture of Acetates directly from Metallic Ores. 305,524.—Jean A. Matthieu, Port Leyden, N. Y.

Surgical Case. 305,628.—Max F. W. Ohlemann, Milwaukee, Wis.

Apparatus for Evaporating Alkaline Solutions.—John P. R. Polk, Wilmington, Del., assignor to the Universal Concentrating Co., Camden, N. J.

ITEMS.

Dr. J. Collis Browne, of England, the proprietor of "Chlorodyne," died lately at his home at Mount Albion, in his sixty-seventh year.

Mr. Alexander Boehringer, who lately became bankrupt in his connection with the extensive quinine works in Milan, Italy, has accepted the management of the Mannheim Chemical Works (Magnesia, *et cetera*).

The German Pharmaceutical Association, which met at Dresden on the 3d of September, was attended by about 350 members and numerous visitors. The income for the preceeding year amounted to about $10,500, of which $4,600 went towards the cost of publishing the *Archiv der Pharmacie*—the official organ of the association. This journal is soon to be issued weekly. The next meeting is to be in Königsberg, Prussia.

The Japanese Government has contributed $100,000 for twenty years, without interest, to a new establishment in Tokio, for manufacturing pharmaceutical chemicals. It has also given the lands and erected the necessary buildings. The total capital of of the company is about $200,000. The increase of the tax on "patent medicines" is made to include many other articles and has led to a decrease in imports. Santonin, for example, which is largely in demand, showed a decrease last year of about 20,000 ounces as compared with the preceding year, although the price fell to twenty cents per oz.—or less than the cost of importing it. The consumption of quinine, on the other hand, had increased.

Remedies for Cholera.—M. Vulpian has made a report to the Academy des Sciences upon 250 remedies for cholera, which have been sent by persons desiring to obtain the Bréant prize of 100,000 francs. Some of the discoverers modestly ask that they may be sent to Marseilles in order to test their remedies.—*Med. Record.*

ACCORDING to the *Medical Record*, the truth regarding the coinage of the word *microbe* is, that it was not Sédillot (in 1878) but Professor Pacini (in 1854) who first used it in speaking of a micro-organism of cholera.

PHARMACEUTICAL CALENDAR.—NOVEMBER.

Additions to and Corrections of the following Calendar are solicited.

Date.	Society Meetings.	Date.	Society Meetings.
Tues. 4th.	Erie Co. (N. Y.) Pharm. Assoc.—Buffalo.	Thurs. 13th.	Newark (N. J.) Pharm. Assoc.
	St. Joseph (Mo.) Pharm. Assoc.		Philadelphia Coll. Pharm.—Alumni Pharm. M.
	Rhode Island Chem. and Drug Clerks' Assoc.		New York Germ. Apoth. Soc.
Thurs. 6th.	New York Coll. Pharm.—Trustees' Meet.		Lancaster Co. (Pa.) Pharm. Assoc.
	Louisville (Ky.) Coll. Pharm.—Pharm. Meet.	Tues. 18th.	St. Louis (Mo.) Coll. Pharm.
	Philadelphia Coll. Pharm.—Alumni Soc. M.		St. Joseph (Mo.) Pharm. Assoc.
Friday 7th.	Cleveland Pharm. Assoc.—Bi-monthly Meet.	Friday 21st.	Rhode Island Chem. and Drug Clerks' Assoc.
	Amer. Chem. Soc.—University Building, N. Y.	Sat. 22d.	Last day to enter (55th Session), N. Y. Coll. Pharm.
Mon. 10th.	New York City Board of Pharm., 209 E. 23d street, at 3 P.M.—Examination.	Tues. 25th.	Boston Druggists' Assoc.
Tues. 11th.	Kings Co. (N. Y.) Pharm. Soc.—Brooklyn.	Thurs. 27th.	Kings Co. (N. Y.) Board of Pharm.—Brookl'n.
Wed. 12th.	Cincinnati Coll. Pharm.—Meet. & Trustees' M.		